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POPULAR Computing WEEKLY

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18-24 September 1986

Vol 5 No 38



QL - LATEST DEVELOPMENTS

CST's Thor (see right)
and Sandy's QLT
machines compared

Plus QL news and reviews



SOFTWARE

PC games at
an Amstrad price
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NEWS DESK

Atari launches its IBM
compatibility chip

Settlement due in
Amiga chip dispute

The invasion of the games machines - p4



Action



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HARDWARE ▶



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SPECIAL
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QL – LATEST
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Eye-Q – the best graphics package yet?



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Games machines are fighting back

GAMES machines, whether in the form of video consoles, or inexpensive computers primarily designed for games, are suddenly fashionable again.

Following the news that Ariolasoft is to import Sega's Master games console into

the UK for Christmas (see *Popular Computing Weekly*, September 4), the toy giant Mattel has announced that it will launch the Japanese Nintendo games machine here too.

And even Memotech is getting in on the act, with the announcement of a sub-£100 cassette-based micro to rival Amstrad's Spectrum Plus 2, and the possibility of importing a Nintendo lookalike machine from Taiwan (see story below).

Mattel is importing and marketing Nintendo's Entertainment System (NES) in two different versions in Britain.

The standard package will comprise the NES console and game controller. A deluxe model will also be sold which also has a light gun controller and a robot to act as a second player. The gun and robot will also be available separately.

Ron Newbold of Mattel UK said, "There will be a library of 37 games initially for the machine. One series is for use with the robot, one specifically for the light gun, and then there is an action series, with games such as *Pinball*. We'll also have sports games and arcade classics, such as *Donkey Kong* and the *Super Mario Brothers*."

All games will be on cartridge. Prices for the systems have yet to be finalised but will probably be around the £150 mark.

Memotech dips under £100 with MTX Mk 2 launch

MEMOTECH is developing a new games micro, to be called the MTX Mk 2. It is apparently being developed in response to requests for a low-cost tape-based system.

The Mk 2 will have 256K Ram, 16K video Ram, and the package will include a six-pack of cassette games, although specific titles have yet to be decided.

The new machine will be compatible with the MTX 512, and can be upgraded to

the new Memotech CP/M system. It will have a composite TV port and cassette port, but no monitor or tape deck is included in the price which is likely to be £99.95.

The machine is due to be launched this month, and will be marketed and supported by a new company, Centaur Computer Services, co-founded by Keith Hook of Syntasoft, ex-Imagine director Mark Butler, and Ken Simmonds of Kerlan Software.

Keith Hook told *Popular Computing Weekly*, "We have been talking to the Tandy network of dealers about stocking the Mk 2 and they have been very positive."

Centaur is also casting an eye at the games console market, and is considering importing a Taiwanese Nintendo lookalike to sell in the UK at around £50. No firm arrangements have yet been made, however.

Atari shows IBM chip

ATARI demonstrated its IBM co-processor at the recent Personal Computer World show, but there is still no definite release date for the UK.

The co-processor comprises the Intel 8088 chip and 512K Ram, and attaches to Atari's ST machine via the direct memory access port. Atari demonstrated the unit in a prototype casing similar to its hard disc units, but it will appear in custom made units when released.

On its stand, Atari demonstrated IBM PC software, such as *Multiplan*, *Lotus 1-2-3* and *Flight Simulator 2* running on the 1040 ST.

The US price for the unit will be around \$200, which translates to about £135.

A spokesman for Atari said, "We are expecting the co-processor to arrive in UK in either October or November - certainly some time this autumn."

PC accounting

INTUITIVE Systems claims that "it is as if the PC 1512 was built especially for intuitive-Solution."

Intuitive-Solution is an applications development environment for PCs which takes advantage of the Amstrad PC's mouse and standard graphics screens.

Laskys to sell support service

HIGH street retailer Laskys is to sell a hotline support service for new computer users for £39.99 for a three month subscription. The package is being operated by the Interlex software group, and operates six days a week, 9am-9pm

So enthused is Intuitive Systems by the PC 1512's launch that it is producing specific applications for use with *Intuitive-Solution*. First off is *Intuitive Cash Book Accounting System*, which costs £99 (plus Vat).

Details from Intuitive Systems, Wye Lodge, 6 High Street, Stevenage, Herts. Tel: 0438 317966.

weekdays and 9am-1pm on Saturday.

The service is likely to be particularly attractive for purchasers of cheaper computers that don't come with a great deal of technical support as standard.

Details from Laskys, Hardman House, The Hyde, Hendon, London NW9 6JJ. (01-200 0444).

Diary Dates

SEPTEMBER

26-28 September
Electron and BBC Micro User Show

UNIST, Manchester
Details: Software, hardware and peripherals for BBC machines.

Price: £3 adults, £2 children, £1 discount for advance booking.

Organiser: Database Exhibitions, 061-456 8835.

OCTOBER

3-5 October

The Amstrad Computer Show

Novotel, London
Details: Home and business software and hardware for the Amstrad range.

Price: £3 adults, £2 children, £1 discount for advance booking.

Organiser: Database Exhibitions, 061-456 8835.

30-31 October

Hampshire Computer Fair

Guildhall, Southampton
Details: Business computers.

Price: Free entry by business registration.

Organiser: Testwood Exhibitions, 0703 31557.

NOVEMBER

7-9 November
Electron and BBC Micro User Show

New Horticultural Hall, Glyncoet Street, London SW1

Details: Hardware, software and peripherals for the Electron, BBC micro and Master series.

Prices: £3 adults, £2 children, £1

discount for advance booking.
Organiser: Database Exhibitions, 061-456 8835.

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

Amiga chip suit comes to trial

THE disputes between Atari and Commodore over the Amiga's custom chips are due to come to trial in the American courts at the beginning of November.

Atari originally paid Amiga, before it was bought by Commodore, to acquire the rights to three custom chips Amiga was developing to be used in forthcoming Atari machines.

Amiga developed the chips, now known as Agnes, Denise and Paula, and built into the Amiga A1000 machine, but apparently then repaid Atari its money. Amiga was subsequently bought by Commodore, which went on to develop and sell Amiga's A1000 with the three custom chips in it.

Atari, by now under Jack Tramiel's leadership, filed a lawsuit claiming that the contract was not properly terminated.

Speaking for Atari in Sunnyvale, California, Claud Mahum said, "I am really not willing to comment at all on

the case: We have a very good case, but our attorneys have advised us not to comment."

Jay Miner, head of the Amiga team, told *Popular Computing Weekly*, "My opinion is that it's just harassment by Atari. I'm sure Atari will lose, so I don't know if there will be an appeal or not, but Atari seems to think the chips belong to them somehow."

Jack Tramiel, head of Atari



Anco goes for US licences

ANCO has signed a licensing deal with US software company Artworx for the 16-bit rights to its current catalogue. Previous Artworx product for 8-bit machines has been released in the UK by US Gold.

Artworx has produced *Strip Poker*, *Bridge 4.0* and *Golf* which Anco will be releasing for the Atari ST and IBM PCs and compatibles this autumn.

This marks a diversification for Anco away from games for the lower costing machines.

"We are leaving the popular home computing market and moving towards the IBM, STs, and Amiga's - but very slowly," said Anco's Anil Gupta. "I think we will definitely see a big upsurge here in 1987, and of course, they are marvellous machines."

Anco's prices for Artworx product will be around £20, and the first Artworx titles are being released this month.

New Commodore micro previews at Comdex?

IT now looks as though Commodore US will preview the next addition to the Amiga family at Comdex, the prestigious American show which begins on November 9.

The machine is a more sophisticated version of the Amiga, and is currently known as the Ranger. It is based on the Motorola 68020 chip, a development from the 68000 used in the current Amiga. The new machine also incorporates a 20Mhz hard disc as standard.

It is expected that this new machine will appear at around the same price as the Amiga is now, around \$1200, with a possible price cut on the current model.

Clive Smith of Commodore US declined to comment on the possibility of the new machine appearing in November. "I'm not even sure Commodore will be at Comdex.



The Darlings: Jim, David and Richard

The Darlings set up independent label

THIS week sees the announcement of a new budget software label which aims to release 50 titles by Christmas and capture a 10% overall market share of this time next year.

Named Code Masters, the label has a strong budget background, headed by Jim Darling, once MD of AI Products, the company that was responsible for the writing of Mastertronic titles until the end of last year.

Spearheading the programming team are his two sons,

Richard and David Darling. Their most recent releases have included *The Last V2*, which launched Mastertronic's MAD range, and *Master of Magic*, in careers that have sold well over a million games to date.

All Codemasters product is planned to retail at £1.99, right in Mastertronic's established territory, although Jim Darling anticipates that his sales would largely stem from an overall increase in budget sales (increasing from the present 40% to around 60%) rather than cutting into the existing budget market, even though the games will be sold through similar channels.

"We're not having a go at Mastertronic," he emphasised. "We'll be producing good quality product by programmers with a reputation."

More details on Code Masters' products in Software Hotlines.

Amstrad joins satellite TV consortium

AMSTRAD is diversifying into the satellite TV field with the announcement that the consumer electronics company has joined a consortium which includes Virgin, Anglia and Granada TV and Financial Times publisher Pearson to set up a satellite TV network.

Amstrad chairman Alan Sugar has said he intends to produce a £99 satellite TV dish by the 1990s.

We don't comment on unannounced machines. I have read the rumours about it as well but I cannot say anything. The Amiga was always intended to be a family machine, so there will be more appearing in the future."

It is not at all clear whether these machines will be sold in the UK. Chris Kaday, Commodore's UK General Manager, said, "As far as we're concerned there will be no new Amigas this side of Christmas. After that, I don't know."

"In the UK, we'll take anything that they make in the States, but I don't know of anything at the moment."

There have been no further developments regarding the possible launch of a 'cut-down' Amiga in Britain, at a price to rival Atari's STs. Chris Kaday was remaining tight-lipped on the subject.

Gauntlet vs Dauntless dispute

A DISPUTE over the rights to US Gold's forthcoming *Gauntlet*, and *Dauntless* from Electric Dreams has been resolved 'amicably', according to Electric Dreams' managing director, Rod Cousens.

The noticeable similarity between the two titles is because they are licensed from related titles.

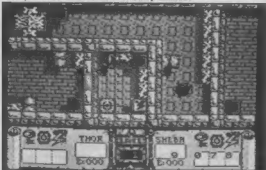
"I licensed the home computer rights to *Dandy*, an arcade game originally from

Atari," explained Rod Cousens.

US Gold has the rights to *Gauntlet*, the arcade game which is a derivative of the original *Dandy*.

"We have come to an arrangement which allows the publication of both games, and ours will now be called *Dandy*" Cousens went on. He appears unworried by the competition between the two titles. "US Gold has the arcade endorsement, but we have put a considerable amount of programming time into ours."

Dandy, was *Dauntless*, undaunted by *Gauntlet*



Software Hotlines

Richard and David Darling have started a new budget label called *Code Masters*, in conjunction with their father, Jim (see news story).

The label will cover the Spectrum, Commodore 64 & 16, Amstrad CPCs, Atari 8-Bit and Electron machines, and possibly the Atari ST.

The eagle-eyed may have noticed them recruiting talent at the PCW show under the

banner of Digital Computers. Sources indicate they were "inundated with programs," and with big money at stake and potential sales of 100,000 plus for a successful budget title, it is rumoured that several well known names have been making enquiries.

The first 12 titles will be launched at the end of September; four on Spectrum, four on C64, two on Amstrad CPC and two on C16.

These include two follow-ups - *BMX Simulator* (sequel to *BMX Racers* - see below) and *The Last V8 II* plus *Terra-*



Konami to go it alone

KONAMI, the Japanese arcade game publisher, whose games have previously been licensed to Imagine Software in the UK, will shortly be launching games under its own name.

Arcade originals *Jail Break*,

Nemesis, *Super Basketball* and *Iron Horse* will be available for C64, Spectrum, Amstrad and MSX in the next few months. After that, Konami plans to convert the coin-op title *Salamander* for these machines for early 1987.

DR books

DIGITAL Research is to make its first foray into the book publishing market, with titles on using its DOS Plus and Gem operating system products, both of which are bundled with the Amstrad PC 1512.

The books are being released to coincide with the appearance of the Amstrad PCs in the shops and, therefore, should be available now.

The three books in the series are *Using DOS Plus on the Amstrad PC* (£9.95 paperback, £12.95 hardback), *Using Gem on the Amstrad PC*, and *Business Presentation Graphics on the Amstrad PC* (both £12.95 paperback,

£15.95 hardback). All titles have been published in conjunction with Glentop Publishers.

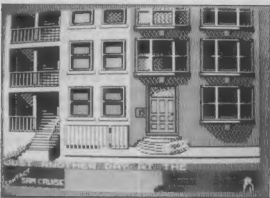
Further details from Digital Research on 0635 35304.

USG hiccups

IN our show report last week, there were some hiccups over our descriptions of US Gold's forthcoming titles.

Gauntlet will also be appearing for the MSX, but an Amiga version has not yet been finalised; Epyx did not produce *Pole Position*, but it has produced *Super Cycle*, and *Acrojet* is more of an aerobic decathlon simulation than a simple flight simulator.

Apologies and ill that.



cognita, written by Steven Curtis, author of Mastertronic's *Nonterraqueous*. More details as they're beamed through.

Anyway, I was sitting in the closet the landlord says is my office, waiting for the phone to ring. Which was something like a drunk waiting for a rabbi to turn water into wine since the company had cut us off last fall.

Then this guy sticks his head round the door. Short guy, 'round five seven, 150 pounds, puffy face. Double

glazing salesman? Or maybe in PR. "You in?" he says. In? With this suit, I hadn't been in for twenty years.

"Siddown," I nodded to a chair, and narrowed my eyes. He looked scared.

"I got deez pictures - a nu game from Microsphere 'bout private investigation in the 1940s stateside. Called *Contact Sam Cruise*."

"Geddoutta here ya bum," I drawled. "My name's Marlow and the *Popular* office is next door."

John Cook

Universal discs for the 8256

SILICON Systems has launched the Uniface, a universal disc interface for the Amstrad 8256. It allows any BBC or Shugart standard drive to be connected to the

machine, and costs £59.95. The company is also now selling a silicon disc and print spooler system for the 6128, price £19.99, and the Amstrad 3 inch add-on drive for the CPC series at £89.95. A 16K sideways Ram, allowing users to shadow Rom code to and from disc, is also to be launched in October at £39.95.

Details from Silicon Systems, 43 Elsinore Road, Old Trafford, Manchester M16 0WG (Tel 061-848 8959/9233).

Secret's out

ST BRIDE'S School is set to convert *The Secret of St Bride's* to both the Amstrad CPCs and PCW machines, to be published by Audiogenic.

Its latest title is *Bugsy*, which will be published by CRL at £7.95 on most machine formats.

PCW - more games announced

MORE games for the Amstrad PCW machines are on their way, this time courtesy of the ironically named CPC Mine-head.

CPC, a business software publisher, is setting up a label, PCW Soft, to produce an initial range of four titles.

Merchant is a trading game for two to six players; *Fantasy Quest* is a U & D type game; *Mountain Leader* has you or-

ganising a climbing expedition, and *Speculators* gives two to six players the chance to become millionaires (within the confines of the program).

All will cost £9.95 each or £35 for all four brought as a set.

CPC can be contacted for details at 4 The Parade, Minehead, Somerset TA24 5UF. Tel: 0643 4851.

PCW - more games ►

Improve your connections

TYPRO is offering a customisation service for people with connection problems. The company will alter its standard products to suit particular needs, even for single orders, and also runs a hotline service to advise on connection difficulties. Prices for interfaces and switches start at £59.95.

Details from Typro, 30 Campkin Road, Cambridge CB4 2NG. Tel: 0223 322394.

Cheap PC networking

MICROMODS' DeskLAN is a cheap PC network. A two-machine network costs £399, while six machines can be linked for £1,599. It will operate with any PC DOS or MSDOS based system, and according to MicroMods is particularly suited to cheaper PCs such as the Amstrads.

Details from MicroMods, 8 Regent Street, Long Eaton, Nottingham NG10 1JX (Tel 0602 724264).



Competition

Still in the running

Two more science fiction movie stills to identify this week in *Popular's* blockbuster competition.

Remember, the prizes are really worth going for - five Spectrum Plus 2s for the

five main winners, then ten Star Micronix STX-80 printers for the next best, and 50 Mastertronic Magnum joysticks for the runners-up.

But don't send us anything yet - there are four more stills yet to come, plus all

the details on how to enter.

If these pictures have got you stumped, don't despair. We may be dropping the odd clue in the final week. Meanwhile, keep this page safe.

Photo 3 - Below - in which film does this man float?

Photo 4 - Right - do you recognise these spaceships?



Going Crackers

After reading your review of The Cracker II in *Popular Computing Weekly*, September 4, I remembered I had seen the program reviewed before in the magazine.

I also had a feeling that the first review was very similar to the one I had just read, and after rummaging through my back issues, I found the first Cracker II review in the *Popular Supplement*, July 24.

My suspicions were proved correct. Both times the reviewer was Tony Kandle, and the reviews were, with a few very minor differences, identical.

Reviewing software twice, especially when it costs about £50, seems an excellent idea, giving prospective purchasers two opinions before parting with their money.

However, as you said in your reply to David Eggold (Letters, September 4), "reviews are essentially subjective", there seems little point in getting the same person to review a program twice.

Stephen Vysny
File

Whoops! Actually, we're really trying to emulate The Guardian, which on September 11 managed to print the same letter twice on the one page.

Dare to help!

HELPI HELPI HELPI HELPI HELPI HELPI HELPI HELPI

Owing to a little misunderstanding between ourselves and our duplicators, there is a discrepancy between the Amstrad disc loading instructions on the *Dan Dare* inlay and disc label and what you must type into the computer.

Instead of *Run'Disc, Dan Dare* requires | CPM (the | (or bar) is achieved by pressing Shift and @).

Patricia Mitchell
Virgin Games
Portobello Road
London

Total agreement

How I agree with your reader Mr Dabner about the Oric Atmos. I too searched everywhere for the Atmos and finally found one on sale in Curry's at about

Printer experiments

Thank you for publishing my last letter to your magazine.

Recently I was experimenting with my C64 and printer. The enclosed subroutine is the result of my efforts. The subroutine allows the user to print in correspondence quality text using an ordinary dot matrix printer such as an MPS 801 and MPS 803, both of which have been available for prices as low as 60 pounds in recent weeks.

The routine works by printing the string PR\$ twice. Firstly, the line spacing is set to the smallest increment possible, then the string is printed once. The line increment is then set to the default setting by printing chr\$(36) in line 1030 of the subroutine. PR\$ is then printed again, giving the appearance of cor-

respondence quality print. Used in conjunction with my Star SG-10C printer it provides a useful supplement to both draft and NLQ typefaces, as it is 50% faster than NLQ printing, yet much nicer looking than the draft mode.

This routine could be adapted to work with any computer in conjunction with any printer which has variable line spacing that is software controlled.

```
900 REM CORRESPONDENCE PRINT
BY A.J.B.
1000 OPEN 1:4,7:OPEN2,4,6
1010 PRINT#2,CHR$(1)
1020 PRINT#1,PR$
1030 PRINT#2,CHR$(36)
1040 PRINT#1,PR$
1050 CLOSE 1:CLOSE2
READY
```

Andrew Bowman
Drymen
Glasgow

Puzzle

Puzzle No 225

"How much was that bike?", enquired Ben as he admired his pal's shining new bicycle.

"Well", replied Jamie, "Take the price of the bike in pounds and pence, and reverse the order of the two digits at the pounds value. Now exchange the pounds value for the pence and the pence value for the pounds.

"The amount that you now have," continued Jamie, "is just 1/3 less than twice the price of the bike."

Ben was duly mystified, but eventually managed to work it out.

How much was Jamie's new bike?

Solution to Puzzle No 220

Answer

The trick will work equally well with packs having 32, 33, 36, 37, 48 or 49 cards (as well as with a full pack of 52 cards).

Solution

The program carries out the trick in exactly the same way as described. The cards in the pack are held in the string *PACK\$,* each card's order being denoted by characters with Ascii values in the range 32 upwards (depending on the size of the pack).

These cards are dealt into two piles as represented by strings *C\$* and *D\$* (remember,

the order of the cards is reversed at each deal). The dealer's pack (*D\$*) is then re-dealt until a single card remains.

The original position of this card is given by the value *ASC(D\$)-31*.

By testing packs of different sizes, those in

which the final card started originally at position 22, are found.

Winner of Puzzle No 220

The winner this week is Henry Lovett-Turner of Barnes, London who will be receiving £10. The closing date for puzzle 225 is October 7.

```
10 PACK$=""
20 M=22
30 FOR N=1 TO M
40 PACK$=PACK$+CHR$(N+31)
50 NEXT N
60 C$="" : D$=""
70 L=LEN(PACK$)
80 FOR N=1 TO L
90 Z=MID$(PACK$,N,1)
100 IF N/2<>INT(N/2) THEN C$=Z+C$ ELSE D$=Z+D$
110 NEXT N
120 IF LEN(D$)=1 THEN 150
130 PACK$=D$
140 GOTO 60
150 IF ASC(D$)-31=22 THEN PRINT"Pack size ";M;"
has card at position ";ASC(D$)-31
160 PACK$="" : M=M+1
170 IF M>52 THEN STOP
180 GOTO 30
```


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● **Amstrad:** CPC Range Software and Interface on ROM £39.95 ex VAT. Full colour Prestel/Viewdata emulation, X-Modem etc.

● **PCW** software available – the most powerful and best selling pack £75.00 ex VAT.

● **BBC:** Commsort ROM £29.95 ex VAT. "...one of the best I've seen..." Steve Gold (Telelink May/June '86)

● **Commodore 64:** Mustang 32 Cartridge £49.95 ex VAT. The magnificent Mustang: Micronet recommend Mustang software.

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BBC (Commsort ROM and Voyager 7) _____ £103.40 ☐

SPECTRUM (VTX 711 and Voyager 7) _____ £119.90 ☐

COMMODORE 64 (Mustang 32 and Voyager 7) _____ £119.90 ☐

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or My Access No is: _____

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Exeter, Devon EX4 6AP Tel: (0392) 213355

PCW/10/95

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Music to the QL user's ears

Leon Heller discovers new musical potential in the QL with ABC Electronic's device

Although the QL has a sound capability, which may be used from Superbasic via the *Beep* command, it is very rudimentary, and quite difficult to use effectively for generating music and games sound effects. Sinclair itself seemed to be aware of the problems, as it stated in the User Guide that "The Superbasic *Beep* command is best used experimentally rather than syntactically".

ABC Electronic is a German company which has been involved with the QL for over two years. It was the first company to sell a mouse for the QL, for use with Giga Basic, and the Qsound/Qprint board is their second piece of hardware.

The Qsound/Qprint consists of a small board which plugs into the QL expansion port at the left of the machine. It uses the ubiquitous General Instrument AY-3-8910 sound processor, which is also used on the Amstrad CPC464 and the Atari ST machines, as well as MSX computers. The chip generates square waveforms which don't sound all that pleasant to a musical ear, but since one has amplitude and envelope control of the three channels available, and various types of white noise can be mixed with the output, a wide range of sound effects and quite passable music may be produced.

To the programmer, the sound chip looks like 13 registers, and is programmed by loading various values into these registers. Also on the board is an Eprom containing the software drivers for the sound chip. The AY-3-8910 also contains a parallel I/O port, which is not utilised on most other systems that use the chip, but is used to provide a Centronics parallel printer port on the Qsound/Qprint. Software drivers are also provided for this port, in the on-board Eprom. A standard 3.5mm jack socket is fitted so that the sound generated may be passed through an amplifier/loudspeaker system (provided by the user).

The code in the on-board Eprom adds an impressive number of keywords to Superbasic for controlling all the functions of the sound chip, including operation of the parallel printer port. Starting with the printer port, a new device named *Par* is available. With a Centronics compatible printer connected to the interface, typing

```
OPEN#3, PAR
PRINT#3, "FRED"
CLOSE#3
```

should output the string *Fred* to the printer. Part of the QL Ram may be

allocated as buffer for a print spooler, by using, say,

```
OPEN#3,PAR_16
```

to allocate 16 blocks of 512 bytes of memory for a spooler. Large files may now be sent to the printer, and normal operation of the QL continued, whilst the file is printed out as a "background" task. Some other very useful options are provided.

"ABC has made a very nice job of the software, making it easy for even an inexperienced user to get some useful effects"

Data to be sent to the sound chip is queued (a facility provided by QDOS), and output under interrupt control, so the QL can get on with something else whilst a whole string of commands is sent to the sound generator.

30 new Superbasic keywords are provided for control of the sound facilities and the parallel port. I can only mention a few of the more interesting ones. *Explode* generates the sound of an explosion; *Hold* stops all interrupt sound lists; *List_Ay* sends values to the registers of the sound chip; *Peek_Ay* reads the sound chip register contents; *Play* puts a string of notes into one of the sound

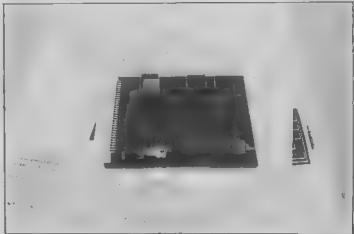
channel; *Release* causes sound lists to be played.

The AY-3-8910 is quite a difficult chip to program (I put one on my old Tandy some years ago, and found it quite tricky to make it do what I wanted), but ABC has made a very nice job of the software, making it easy for even an inexperienced user to get some useful effects provided he or she has a reasonable command of Superbasic.

A small A5 booklet is provided comprising 22 pages. The first section (two pages) is devoted to the parallel printer interface, and the remainder deals with the sound facilities provided. All the additional keywords provided are described briefly. The assembler programmer will find a very detailed description of how to access the sound chip functions, documented in a similar manner to the Sinclair Technical Manual. A few examples should have been provided, but the manual is otherwise quite good.

The price of £69.95 (plus Vat) seems a little high, but if you want to produce excellent sound effects for games, or reasonable quality music, on your QL, this is the only way to do it. The onboard software seems excellent, and the parallel printer port and spooler functions are a very useful bonus.

Product: QSound/QPrint board **Manufacturer:** Sinclair **QL Price:** £69.95 + VAT **Suppliers:** Digital Precision, 222 The Avenue, London E4 9SE, 01-527 5493. Leon Heller, 65 Flanders Mansions, Flanders Road, London W4 1NF, 01-994 7976



Lernloco - a bit too simplistic

Lernloco is a tutorial package on disc on the intricacies of *Locascript*. It aims to take the user through all *Locascript*'s features and the short cuts which certain keys can provide.

As such, it is not laid out in the way that the manual takes you through. Where the Amstrad manual starts with writing a letter, tidying it up, printing it out (with a lot of going off tangents on the way), *Lernloco* is rather more concerned with the codes (italic, bold text, etc) and specific PCW keypresses for finding your way around in the early stages.

As such, it is extremely thorough, dealing with details such as line pitch variation, exchanging and finding and all the *Alt*, *Shift* and *Doc/Page* combinations almost without the first half hour you'll spend with the package.

This leads me to suspect it is meant not so much for the complete *Locascript* beginner, but for someone who has mastered simple letter writing, and has given up on the manual. Even so, all the basic information about making back-up discs, and proceeding from the disc management screen into documents is in there as well.

Later sections describe the mysteries of headers, footers, pagination (including the legendary page numbering conundrum), making labels, and saving blocks and phrases. It's a pretty exhaustive guide.

Like these text tutorials on disc, one wonders whether it would have been just as effective as a booklet - or book in this case. *Lernloco* asks you to print out most of the tutorials, and refer to them while using the

PCW in its various test sections. It also invites you to make on-screen alterations to the *Lernloco* text itself, which goes some way to justify putting it all on disc.

My main criticism has nothing to do with *Lernloco*'s content but the style in which it's written, and to some extent the presentation.

Considering that *Lernloco* comprises about 150K of text to read, there is only so much of this 'Let's Learn *Locascript* with the Mr Men' style that one can take. Has Minerva done some market research which suggests that the majority of 8256/8512 buyers are under ten, I wonder?

The presentation on screen uses as many sub-layouts, varying pitch widths, and as much emboldening, underlining, reverse video and italicisation as it can, within each 'page'. This makes it

quite difficult to read on screen at times, even if it does provide a practical example of the many presentation options available. The printed out versions are easier on the eye, if not particularly cohesive in appearance, but I still feel that someone has gone somewhat over the top.

However, for anyone who is wondering just exactly what all those keys on the right hand side of the 8256 do, or who would love to get heavily into sub-layouts and varied editing, *Lernloco* provides a clear practical guide.

Christina Erskine

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ST Toolkit offers a small number of utility functions to help you use your computer more efficiently. These functions being Printer Spooler, Ram Disk, Diskcopier and Disk Utilities.

The Printer Spooler is one of the most useful utilities as it enables you to carry on working when your machine is churning out a large document and would otherwise be rendered unusable until the document had nearly all been printed.

After running the program you are asked for the size of spooler that you require, having to choose from 16K, 32K, 48K or 64K. Once picked it's simply a matter of clicking on the install box onscreen.

Next in the value stakes is the Ram disk program. This, of course, reserves part of the memory and uses it as a pseudo disc drive to save and load data faster and more reliably than the real thing (although all data must be physically saved before the machine is turned off).

Once installed a 520ST has a Ram disk of 284K and a 1040ST, one of 749K. An icon labelled Drive D now ap-

pears on the desk top and is available for use.

Of less use is the Diskcopy program which offers a copy or format and copy option. The disc you're copying is unprotected then you may as well do it from the desk top as it's much simpler and quicker (in practice) than this pro-

gram. As far as making back-up copies of protected discs goes - the program failed to copy the two discs it was tried on.

Disk Utilities offers very little that is new, apart from the ability to rename discs after they've been formatted. Personally I couldn't discern

anything here that isn't possible from the desk top.

Duncan Evans

Program ST Toolkit Micro
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```

%:TUITION%:TUITION.006 Editing text. Printer file: Using At
%Layout %Pips %LSI %LP6 Page 6 line 1 of ST
%Show %2=Layout %3=Emphasis %4=Style %5=Lines %6=Pages %7=Nodes %8=Blocks EXT
%ition,006%
(Centre) (%Pitch12) (%Rev)direct LSI (%Rev) (%Pitch12)%
Please beware Jenny I am showing CODES in TUITION.006 which may cause some
confusion when you are reading the text ! (%UL)Don't forget the EXCH facility. (%UL)%
% Pages 7 to 10 are devoted to BASE and MDN (sub) Layouts but for the moment
please consider the information on display in the (%Rev) the green highlighted area
at the top of the screen (%Rev)%
Pips shows the Base Layout is set in Proportional Spacing, LSI is one space
between lines, LP6 is a pitch of 6 lines to the inch, although these 3 types
of command are set in the Base Layout they may be introduced by (%Bold)direct COMMAND
whilst editing text.%
%
% +LSI=+ LineSpace 1 or Single Line Spacing
% +LP6=+ LineSpace 2 or Double Line Spacing
%
% (%Rev)You shall change the pitch with the command LSI, now (%LSpace1) (%Rev)%
this paragraph is now on 14 LINE SPACING and at the end of it I have given the
COMMAND %LS which returns the SPACING to that which is in the BASE LAYOUT. (%Rev)%
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%
The effect of these changes are not evident on the screen but will be seen
when printed. The command +LS3 followed by ENTER creates triple line spacing.
% (%Rev)Move the cursor slowly down the page Jenny and watch the effect on the LSI.
% NOBEM displayed top right of the screen. Try it again starting under

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It's the sound of freedom

John Lettice reviews games for PCs from MicroProse and Activision

When you hear a McDonnell Douglas F15 screaming overhead do you think to yourself, that's the sound of freedom? ■ you found yourself at the controls of one, would you pop over to Tripoli and turn Colonel Gaddafi's tent into a large crater?

If your answer to either of these questions is no, clearly you've got The Wrong Stuff, and as a potential agent of International Communism shouldn't be allowed near MicroProse's *F15 Strike Eagle*. Pity really, because it's one of the classier programs we're likely ■ see running on the Amstrad PC this autumn.

One of the nicer things about Amstrad's latest launch is that it should allow people in the UK ■ get their hands on some of the best of US software at reasonable prices. UK software houses are scrambling to sign up licensing deals for PC programs, and even now there are ■ few programs around that will help you get the flavour of what's in store. Back to *Strike Eagle*, which is ■ highly polished combat simulation, running to two kinds of air-to-air missile, electronic counter measures and such frills as drop tanks and a head-up display.

There are seven scenarios of progressive difficulty ■ all, starting with the notorious Libyan mission (written before the more recent real thing) and then Egypt, Syria and Vietnam to Iran. The structure of each is the same — you begin flying towards the target, and on the way cope with missiles from the air and the ground plus enemy aircraft.

The display is convincing, and there are enough compromises with the arcade to make play fast and addictive. MicroProse's political outlook may be, er, interesting, but no way ■ the company getting this one back off me . . .

Gamestar's *Championship Golf*, being released here by Activision, suffers initially if you compare it to *Leaderboard*, as the IBM's display can't rival the ST's (or, arguably, the Commodore 64's). But you'll find it's trickier and possibly more accurate than *Leaderboard*.

The version reviewed here is *Pebble Beach*, and try as I may, I still haven't managed to get round in anything better than 60 over par. The initial play screen ■ split between a plan view of the hole and a perspective view from your position. You swivel yourself round with the function keys to get the best shot angle, then move on to club selection.

Once you've done this you can adjust your stance, then control is by keyboard, which governs whether you use wrist action, body action or both.

I'd like to see a mouse facility for the game, but apart from that it's great stuff, and hours of entertainment.

Back to MicroProse, which with *Hellicat*



Ace seems intent on proving that not ■ its products are terrific. The script is war in the Pacific, the screen display is simple, and neither your aircraft or the opposition's behave as the real thing should. For example, ■ you turn towards an opposing fighter it will often sit at the same point on your screen while you are turning before appearing suddenly ■ your rear-view mirror. Too suddenly.

There's a caveat that relates to all of the above ■ you're planning to buy an Amstrad PC. For a start, ■ you have a monochrome monitor none of the games will run. Secondly, the PC's display is

actually quite limited in terms of the combinations of colours you can show at any one time, and the use of mice on the machine ■ quite ■ recent phenomenon. The Amstrad PC has a more sophisticated display ■ terms of the colours it can show, and has a mouse as standard, but most of the existing US product won't take account of this.

Now what the importers should do is include a couple of patches that will allow mice to be used, and one that will allow programs to take advantage of the Amstrad's extra colour.

A trying Uridium clone in Psycastria

Uridium clones seem to be coming out almost by the dozen lately, so it was only a matter of time before there appeared one for the BBC and Electron: here it is, *Psycastria* from Audiogenic.

Written in Mode 1 on a reduced screen (saving a bit of memory) the action is smooth, horizontal scrolling over an obstacle-strewn futuristic technoscape. The four colour display is quite effective, spoilt only by the ship changing colour when moving over some of the backgrounds. Sloppy.

Controls are simple left/right, up/down, fire and the choice of joystick or keyboard is there - although we all recommend keyboard here,

rather than the flabby response given by the analogue joystick.

Although the game draws heavily upon *Uridium* for inspiration, the actual task in hand is different, and considerably more difficult. As you fly along you must destroy 10 energy pods on each level - this is quite a task even assuming you can identify them (it took a call to Audiogenic to sort this out) placed as they are in niches between structures that need the co-ordination of a mega-being from the 9th Dimension to swoop into, fire, and swoop out again without creaming your spacecraft up against a wall. That is, *Psycastria* is difficult.

This choreography of mayhem all carried on with above



average zippangs and pnows (which can be turned off if necessary) and a host of alien nasties which only travel in straight lines, to begin with.

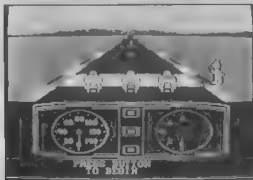
Being the only program of this type presently available on the BBC, it is certainly worth getting hold of if you are an arcade fan - but I can't help thinking that with a little more effort, this would have

been an excellent game, rather than simply a competent one.

Popular Appeal ♦ ♦ ♦ ♦
John Cook

Program Psycastria Micro BBC B/Electron Price £7.95 (tape) £11.95 (disc)
Supplier Audiogenic, PO Box 88, Reading, Berkshire RG7 4AA.

Racing along with Super Cycle...



From the company that brought you *Pole Position* and *Pole Position II* now comes another classic racing game - *Super Cycle*.

It's on with the leathers (choice of style and colour natch), kick start the motor and you're off. Slot it into first, push the revs into the

red, then it's through the gears (three only), leaning the bike left and right through the curves as the track (and many other riders) come hurtling towards you.

There's no doubt about it, *Super Cycle* is fun. Immensely playable, it's the sort of game that you can just pick up the joystick and enjoy from the word go, yet on the harder levels is fairly challenging. Not without it's faults, however.

Unlike that cracker of a game *Pole Position II*, there is no two-player option - strictly you against the computer here, which is a great pity. If you complete the course within the allotted time limit, a new one automatically loads from tape which slows down

the action considerably. No high score table either.

Even so, *Super Cycle* is slick, loud and fast - but if you already have *Speed King* for instance - it's a fact that although this particular Epyx epic has considerably more polish, the game play is essentially pretty similar.

The decision as to whether you want to pay for a graphically enhanced version is up to you.

Popular Appeal ♦ ♦ ♦ ♦
John Cook

Program Super Cycle Micro Commodore 64 Price £9.95 **Supplier** US Gold, Unit 2/3, Halford Way, Halford, Birmingham B8 7AX.

...and gliding with the Rider

All the thrills of hang-gliding with none of the broken lags are offered by *Glider Rider*. Couple this with an opportunity to indulge in a little sabotage and destruction, some great graphics and a superb soundtrack - on the Spectrum! - and you get the best game

Quicksilver has released for ages.

The Ultimate-style, single-colour, 3D perspective graphics illustrate a heavily fortified island complex, along around which you, the intrepid commando, must travel by motorbike. Finding a slope to launch from allows you to take to the

air in a dinky hang-glider, dropping bombs on the enemy.

Pop-up status windows keep you informed of your progress, while on the 128K version an astonishing soundtrack featuring sampled sounds as well as chip-generated music keeps the action moving.

Popular Appeal ♦ ♦ ♦ ♦
Chris Jenkins

Program Glider Rider Micro Spectrum Price £8.95 **Supplier** Quicksilver, Argus Press Software, Victory House, Leicester Place, London WC2.

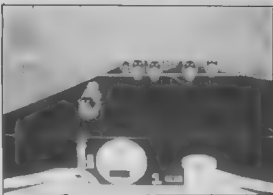
The spectrum of racing

T*T Racer* ■ that long awaited title from Digital Integration – more than 18 months in the writing – so I was hoping for something extra special. Was this finally going to be a *Revs* for the Spectrum? Reluctantly, I have to say a firm no.

There is no doubt that DI has taken meticulous care over writing this one – it has more options than you'll find traded on a busy day at the Stock Exchange, and the unique feature of being able to network up to seven Spectrums together (via Interface 1) to race against each other. But did I ever feel like riding a motorbike, let alone racing a 500cc machine? Was I ever

caught leaning into corners, joysticks in sweating hand, eyes glued on the monitor? Did I ever feel I was actually out there on the tarmac of beloved Silverstone? Not once.

"Unbelievably realistic," ■ the quote used on the inlay from Paul Lewis, fully paid-up member of the Suzuki team. I simply can't agree. ■ a complete novice doesn't crash once on his first time out with throttle wide open all the way, there is something very wrong, no matter how technically realistic this simulation is. But on the other hand, if it's trying to be a pure race game, it's just not good enough in terms of graphics



and illusion of speed.

Still, it is a fact that there are relatively few race games for the Spectrum, and *T T Racer* is far from being a dodo. But it's not up to DI's usual high standard of simulation and it won't impress your Commodore owning friends that have just come off that adrenalin high of *Super Cycle*.

Popular Appeal ♦♦♦

John Cook

Program T T Racer Micro
Spectrum Price £9.95
Supplier Digital Integration, Watchmoor Trade Centre, Watchmoor Road, Camberley, Surrey GU15 3AJ.

Bug-Byte's leap in the dark

Okay, so budget label programs don't usually score on originality. Price and entertainment value are the main considerations here so it's unfortunate that *Leeper* from Bug-Byte fails on both of these counts as well.

The basic premise of the game is that you must guide your sploodge called *Leeper* to the top of the screen by jumping through holes in platforms that glide above his head. Yawn.

To liven up the proceedings, albeit infinitesimally, there are six varieties of unfriendly splodges, ■ out to send you back to the beginning of the game (and you can't get more unfriendly than that). Bigger yawn.

The graphics are lousy (the black background not helping matters), and the animation is just as unimpressive. For nigh on three pounds this game is still overpriced and can basically be considered as a blank cassette if purchased. Eyes

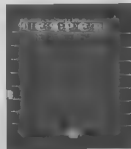
droop, yawns again.

There you have it, all the intellectual challenge of death and about as exciting. Zzzzzzzz...

Popular Appeal ♦

Duncan Evans

Program Leeper Micro
Atari 8-bit range Price £2.99
Supplier Bug-Byte, Liberty House, 222 Regent Street, London W1R 7DB.



The return of the space turkey

Back in the mists of time (circa '83) programs like *Galaxibirds* could command a price of eight quid or so. Nowadays they are faced to spend their short lives on a budget label retailing for the bank breaking sum of £1.99.

Yes, it's one of those space games involving move, shoot, move and shoot again. This time the foe are not aliens of a green persuasion but are turkeys with a learning like desire to end up at Kentucky's.

The graphics are pretty standard for this type of

game, the turkeys being smoothly animated. After each wave there's a different breed of turkey.

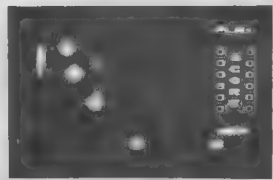
The title page has a nice line in caustic comment, sending up the game itself, amongst other things.

If you want to kill, kill and kill again, you can't go far wrong with *Galaxibirds*.

Popular Appeal ♦♦♦

Duncan Evans

Program Galaxibirds Micro
C64 Price £1.99
Supplier Firebird, 74-78 New Oxford Street, London WC1.



A bunch of turkeys from Firebird

The action at Olympia

Tony Kendle with all that's new in arcade games from the Personal Computer World show last week



The big news last week was of course the PCW show at Olympia where software companies traditionally show all the best of their products which they have been preparing for the Christmas market.

This year's show struck me as the best for some time – fewer mega-hyped games but generally much higher overall standard – and there was quite a few excellent releases due in the shops over the next month or so.

I won't talk too much about *Fist II* from Melbourne House or the superb *Faster Than Light* games from Gargoyles, such as the *Xenious* clone *Light Force*, as they were covered in *Popular* – quite a lot of depth.

Ariolasoft had their usual range of interesting new products, including a follow up to *Floyd the Droid*, but it all was eclipsed by the Amiga version of *Marble Madness* which was everything you dreamt it would be.

On the whole though the ST put on a stronger show – a wide range of graphically superb, if unoriginal, games were on display including *Karate* and lots of shoot-ups from *Paredox*; Rainbird had some impressive demos of its forthcoming *Starglider* which looked like a mega version of *Dark Star*.

Possibly best of all was the ST *Mercenary* which looked like it would live up to all expectations. Excellent news is that Amstrad and Spectrum versions are well underway.

Making its appearance at long last was Ocean's *Street Hawk* and it looked worth the wait – a top down view of a 3D car and motorcycle chase.

Another excellent car game from them is *Nightmare Rally* and *Parallax* – a *Uridium*-like space game.

Also a bit like *Uridium* is *Maneh's WAR* and of course it was difficult to miss its new judo game *Uchi Mata* with Brian Jacks on hand throwing people around the stand.

The best *Uridium* style game though was *Uridium* itself – out on the Spectrum from Hewson and looking superb. Another interesting release is *Firelord* from Steve Crow of *Starquake* fame which has his own *Ultimate*-plus graphic style.

Hewson's Commodore follow up to *Uridium* was there in the form of *Alleykat*.

Electric Dreams had a very strong

display with an excellent official version of *Tempest* running on the Amstrad CPC's. Promised highlights that I didn't get to see were *Dauntless*, the game of *Aliens* and conversions of the Atari classic *Star Raiders* – possibly the greatest cult game of all time I can't guess why it took so long to think of putting it on other machines.

As well as the official US Gold *Gremlin* there were also marked similarities between this, *Gremlin's Way of the Tiger 2* and *Firebird's* high quality Amstrad version of *Druid*.

Current US Gold favourites of mine are *Beyond Forbidden Forest*, a follow up to the super creepy 'shoot the monsters' game – and the awesome latest in the *Ultima* series (although not really an arcade game).

Firebird's *Elite*-challenger *Chola* looked confusing enough for me to believe it really could take on its predecessor and *Sentinel* is of course being raved over by our own John Cook but I was also taken by a cute Spectrum game *The Ghost of Cleymorgue Castle*.

The other big hit is of course Don

Priestley's *Trapdoor* game from Piranha – marvellous atmosphere and superb graphics for the Spectrum version, don't miss it. The new Piranha label looks to be very strong, with other interesting releases, *Rogue Trooper* and *Nosferatu*, being programmed by Design Design which certainly knows how to write good arcade games.

Gremlin had a fast and furious ball bouncing game, like a 3D *Boulder* – some ways but the ground moves like a huge conveyor belt rather than the ball, which was called *Trailblazer*. There was talk of an Amstrad PCW version of *Boulder* although it wasn't on show.

Star of the show for me though was probably Digital Integration's *Tomahawk* on the Amstrad PCW – so unexpected and so well done it knocks *Batman* off its perch as the best thing seen on a green screen. Also on show at long last was *TT Racer* on the Spectrum which looks like several other motorcycle games but plays superbly.

I'm sure we'll be hearing a lot more about most of these games in future columns.

Charts

Top Twenty

- 1 (–) Super Cycle
- 2 (15) Dan Dare
- 3 (8) Dragon's Lair
- 4 (1) Speed King
- 5 (–) Go for Gold
- 6 (2) Thrust
- 7 (7) Kane
- 8 (3) Ghosts and Goblins
- 9 (9) Knight Rider
- 10 (4) ACE
- 11 (5) Ninja Master
- 12 (10) Ninja
- 13 (14) Hole in One
- 14 (–) Bump Set Spike
- 15 (–) Kai Temple
- 16 (16) Kick Start
- 17 (–) War Hawk
- 18 (–) Nightmare Rally
- 19 (13) Molecule Man
- 20 (6) Green Beret

Figures compiled by Gallup/Microscope

Epyx/US Gold
Virgin Games
Software Projects
Mastertronic
Americana
Firebird/Superior
Mastertronic
Elite
Ocean
Cascade
Firebird
Mastertronic
Mastertronic
Mastertronic
Mastertronic
Mastertronic
Firebird
Ocean
Mastertronic
Imagine



Adventures at the Olympia

Tony Bridge brings tidings of great adventure games from the recent Personal Computer World Show in London

There are many computer shows around now, most of which cater for a particular model of home micro: but probably the most respected and most attended is the *Personal Computer World* show in London, which manages to cover every computer in both games and business software. The Grand Elf braved the crowds to bring you the news of the latest adventures from the cream of the software houses.

First of all let me banish those cherished thoughts you may have that text adventures are still up there in the forefront of computer entertainment; the flavour of the year is arcade conversions, and this was evident at the show from the multitude of arcade machines dotted around the stands.

Despite being just about the oldest enthusiast this side of the counter, the Elf could be found breaking joysticks along with the best of them, though the chap who was rapidly approaching a score of seven million on a gyrating *Space Harrier* machine put my feeble efforts very sharply into perspective, I'm afraid!

I had to admire the courage of those software houses who were displaying machines like *Gauntlet* against their conversions - in this case, crowds of players clustered around the arcade version, zapping away furiously in a concerted effort against the Troll armies and flocks of ghastly ghosts, with the fantastic graphics and the attendant thumps, sampled groans and screams and digitised commentary going to make sensory experience secondly only one.

Set against all this is the micro conversion, with a couple of squeaks and a pharp. Hardly the same, is it? But still, it'll be a great hit, because who can afford to keep feeding all those ten pences?

What all this means is that most of the larger companies are concentrating their efforts on these arcade conversions rather than adventures. Of the adventures to be seen, most were for exotic machines like the Macintosh and ST.

For example, Mirrorsoft has several American games coming up, all making use of the hi-res screens of the newer machines, though "coming soon" is *Icon*

John for the Amstrad CPC series, which as you'd expect is icon-driven. Haven't seen it, but the picture looks nice.

One of the few mainstream adventures on show was *Hacker II* from Activision. *Hacker I* is not one of my favourite programs, but the new game seems to be very much more interesting, with nice graphics enhancing an investigative romp through a previously impenetrable Soviet facility in Siberia.

It will be available for all the American machines to start with followed by the Amstrad and Sinclair ranges "soon". Encouraged by the success of such programs as *Mindshadow* and *Borrowed Time*, Activision has just formed a new label, *Advents*. The aim of this is fairly obvious - it is "dedicated to the public-

course) going to rival anything written by Infocom, but haven't we heard that before? It wasn't anywhere to be seen, so we must wait; I'm sure it's "coming soon".

The fruitful collaboration between Level 9 and Mosaic Publishing continues with *The Archers*, a look behind the scenes of that most enduring soap opera, and previewed at the show. The game puts you in the editor's chair from where you must take the decisions regarding plot decisions for the main characters. For all you Archer fans who have been waiting with bated breath for just such an announcement, now is the hour!

Meanwhile, the Level 9 museum brought a few nostalgic tees to the adventurer's eye, with ancient ads and cassette inlays as well as screen shots from those old games. Did you know that Level 9 once challenged the arcades with their version of *Space Invaders*? Nothing new, though, except for some stunning digitised pictures on the Amiga to show everyone that Level 9 can dish up the graphics with the best of them (they're just having a bit of trouble incorporating them into the adventures).

The Rainbird stand was also of interest to an adventurer, showing the Level 9 trilogy, *Jewels of Darkness*, though I'm sure you know about that already, along with more versions of *The Pawn* from Magnetic Scrolls. Anita Sinclair, authoress of this most wonderful game tried to explain the trapdoor joke to the Elf (which joke, she tells me, is completely transparent to everyone else in adventuredom), but I'm afraid that he still fails to see why a programming fault should be such an obvious and endearing hoot!

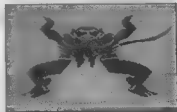


tion of high level graphic/text adventure programs." For the usual micros, the first titles will include *Chicago*, *The Sokenoth Affair* and *Traitor*, the first of these, which has been written by the Ram Jam Corporation, known for *Valkyrie 17* and *Terrors of Trantoss*.

You'll have gathered from the title that the adventure puts you in the shoes of a gangland hood, thirsty for revenge against the thugs who double-crossed you and landed you in jail. Ram Jam has used their in-house adventure creator, *The Bird* - this allows for intelligent characters, flexible responses and tricky puzzles.

Some months ago, I talked with Ram Jam about this utility, and it said then that it was willing to share the program with other major software houses, though it would not be going on general release as a *Quill*-type offering.

Talking of adventure creators, I was looking forward to seeing that from The Edge, which is (according to The Edge of



From *Jewels of Darkness*

Lord of the Rings part 1 on Commodore 64. How do I get over the last bridge without being captured? Dale Hobson, Broadmeadows, Lambrook Road, Shepton Beaucamp, Ilminster, Somerset TA19 9NA.

Zok's Kingdom (Curse of the Werewolf) on Vic 20. I can't get past the room of pits, and can't wake the girl. Also I have not discovered all command words. Robert Turner, 24 Harvest Road, Denmead, Portsmouth, Hants, PO7 6LD.

The Pawn of Atari ST. How do I move the boulders? What item does the guru want? Nigel Morse, 11 Green Leaf Avenue, Wheatley Hills, Doncaster, DN2 5RG.

Hampstead on Commodore 64. I've visited Chubbie's mansion and been knighted - now what? Shelley Baron, 1A Wayside Avenue, Bushy Heath, Herts, WD2 3SH (01-950 9320).

Mercenary on Commodore 64. What do I do with coffin? I've done the rest, my score - 1604000. Arthur, P.O. Box 48, Derby DE6 6QP.

I have completed the following (and offer help on) - Jewels of Babylon, Heroes of Karn, Message from Andromeda, Red Moon. Send SAE to Christopher Eng, 14 Amner Road, London SW11 6AA.

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Sphinx Adventure on Electron. How do I get across the lake? Where can I get the boat? How do I get past the canyon? Carl Hetherington, 29 Upper Packington Road, Ashby-de-la-Zouch, Leicestershire LE6 5ED.

Aquanaut 471 on Dragon. Cannot you find way to wear helmet or am I totally wrong? Colin Morrison, 1 Seabank, Tjammaville by Dingwall, Ross-shire.

Supercorn (Atlantis) on Spectrum. How do you get the third code for the armageddon computer? S. A. Harrison, 29 Buchanan Street, Stockton-on-Tees, Cleveland TS18 1WP.

Lord of the Rings on Spectrum. I am

lame, send it to us, and a fellow adventurer may be able to help.

Remember - the system only works if those adventurers who have solved the puzzles get in touch. Every week we Save An Adventurer Today (SAAT) week!

stuck in Lotherien. Cannot cross river or climb tree. Jean Davis, 60 Arch, Kyrranos Avenue, Strovolos, Nicosia, Cyprus.

Elite on Spectrum. Lenslok - how do I get into the game? Mr F. Dunbabin, 12 Buttermere Avenue, Orford, Warrington, Cheshire WA2 0NJ.

Borrowed Time on Commodore 64. Which P.O. Box does key open? How to get paper from Leboaks Fireplace? Combination for shed? S. Ronayne, 8 Turpin Court, North Arbury, Cambridge CB4 2RN.

Sinbad and the Golden Ship on Spectrum. Keep getting killed by skeleton or wizard. Kevin Kelly, 30 Poplar Place, Blantyre, Glasgow G2 9QA.

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THE SINCLAIR QL

**New product news
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**Alive and leaping –
CST's Thor and Sandy's
forthcoming QLT
system**

**Giga Basic and Giga
Desk – making the most
of the QL's operating
system**



**Eye-Q, a graphics
package worth seeing**

A dead machine? Not if the QL's thousands of users here and overseas have anything to do with it.

The first affordable 68000-based micro refuses to lie down; apart from a continuing stream of software releases from third parties, manufacturers like CST and Sandy are further refining the QL with their ambitious repackaging and redesigning programs. In this supplement you'll be able to read about the CST Thor, on the market now, and Sandy's planned QLT, both QL-compatible while offering vastly improved specifications.

Communications, graphics, games, basic extensions, WIMP systems; they're all here to prove that the QL is still making quantum leaps even without Amstrad's support. It looks like the QL will be with us for some time to come. ◀

Black is the colour

Icicle

Eldersoft's support for the QL is to develop into a continuing program of software and hardware production for the CST Thor system.

Ken Browning explained that Eldersoft, UK distributors of CST's Thor system, will be producing a number of products including a desktop publishing package suitable for use with a laser printer. The system will also be available for the expanded QL, and Eldersoft will be running a laser printing service for users who don't want to invest in an expensive

printer.

Also on the way is ICICLE, a development of the popular ICE operating system which offers user-defined icon control from the Psion packages. Upgraded versions of QSpell and other Eldersoft programs are also being prepared for the Thor.

Other projects further in the future may include a serial/MIDI interface board, and a 68020 board which will give a 4-6 fold speed increase.

Eldersoft's QL/Thor support service already has 1200 members, indicating ■ Ken Browning a continuing enthusiasm for the machine and a sustained demand for product support.

The group maintains a large software library, and arranges workshops for members. Lists of members in a particular area, and membership details, are available from the membership secretary, Brian Pain, at 21 Oxford Street, Stony Stratford, Milton Keynes MK11 1JU.

QATS

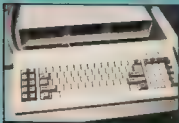
QATS, the QL Applications Traffic Supervisor, is a utilities program developed by Gordon Henson of COPE. It's designed to reduce the number of keystrokes needed to perform task manipulation and housekeeping on the QL, and runs from inbuilt menus which can be tailored by the user.

For instance, using QATS you can define a menu called PSION which allows you to choose which of the Psion packages to boot. The appropriate program will then start up, and when you have finished your task will return you to the QATS menu.

Using a QL with expanded memory, it's possible to initiate and return from other EXECable jobs, use wildcard file

Quanta

The QL users' group QUANTA made a strong appearance at the PCW Show, and is still recruiting new members. Membership is by subscription to the monthly newsletter, which contains a technical advice section, news, software reviews, programs, wants lists and classified ads.



processing, fast copy files, delete files, format media, manage QL jobs, and display files alphabetically showing file sizes.

The full package consists of a hefty manual, two microdrive cartridges (which are unprotected and can be transferred to other media) and an EPROM which can save 16K of operating memory. Prices are £20 for the base system; £15 for the output control section alone; and £10 for the EPROM. All prices include p&p, VAT and media costs. The output control section alone is capable of print spooling, dividing unformatted files into pages with headings, printing labels or mailing lists, and allowing for single sheet or continuous stationery.

For more details contact COPE, 3 Langham Mansions, Earls Court Square, London SW5 9UH.

DJW joystick

Games players will be pleased to see the arrival of a new and reasonably priced joystick for the QL. The DJW Joystick, at £6.99, has a large circular base with four suckers, a pistol-grip style handle, firing trigger and thumb button, and a long cable with a standard Telecom plug.

The DJW stick comes in two parts: the handle pulls out of the base for storage, and connects with a video-type plug.

DJW also manufactures Housewife, a "domestic planning" program which includes a shopping list compiler and a cookery book. The shopping list allows you to compile, edit and print out lists of around 200 items, using a six-option menu, while the three-part cookery book (starters, main course and desserts) allows you to select a recipe, enter the number of people required, and display the ingredients and quantities required. In both cases the text can be printed out for

future reference. Housewife costs just £4.99.

For more details contact DJW Software, 11 Pound Close, Bramley, Hants, RG26 5BL.

Q Flash

If you want to improve the performance of your microdrives, but can't afford to upgrade to floppy disks, TK Computerware's QFLASH might be the solution.

The QFLASH RAM-disk claims to be up to 12 times faster than other similar programs. It enables you to produce pull-down windows in Superbasic, create animation using LBYTES commands, load long machine code programs quickly, and multiply the speed of I/O intensive programs by up to 100 times. Using the optional Toolkit, you can also copy microdrives to RAM-disk in 7-14 seconds, rename microdrives, patch and repair damaged files and use RAM screen editors in hex and ASCII.

Ram Disk costs £13; Ram Toolkit £10; the set on microdrive is £19 and the set on EPROM is £21. For more details contact TK Computerware at Stone Street, Stanford, Nr Ashford, Kent, TN26 6DF. 090381-2052.

Toolkit 2

Care Electronics' QL Toolkit 2 is now on the market. An upgrade of the original Toolkit which was designed to overcome some of the shortcomings of the QL ROM, Toolkit 2 includes commands for file editing, directory control, file maintenance, superbasic expansions, display control, file copying, jobs control, character definition, memory management, error handling, network commands and microdrive handling among others. There are over 100 new commands overall.

The Toolkit 2 ROM was written by Tony Tebby of Qjump. Also available from Care is a character font generator, which we'll be reviewing in a forthcoming issue. Contact Care Unit 14, Peerglow Industrial Estate, Old's Approach, Tolpits Lane, Watford, Herts, WD1 8SR. 0923-777155.

Ambition

Quanta member Alexander Waye has devised a business orientated strategy game, Ambition, which he claims is both entertaining and educational (and also unique!)

Ambition was developed entirely on the QL, and is a four-player game based on

land development and building opportunities. Each player starts with a £40,000 redundancy payment and a house worth £30,000. Play takes place on a town map divided into four sections, each of which is "home" for one player. A simulated dice throw determines the players' moves around the board, while a display at the top of the screen shows the date, move number, position, and sector of each player.

The game involves buying and selling building material, dealing with the planning department, hiring tradesmen, developing land and accumulating cash and stock. For more details of the game - which Alexander Waye is hoping to develop into a full commercial package - contact him via Quanta or enquire to Care Electronics at the address above.

Astracom 1000

The Astracom 1000 intelligent modem is now available with special QL software thrown in free. Suppliers Strong Computer Systems supply the modem, software and serial cable for £175.00 + VAT.

The Astracom 1000 features autodial, autoanswer, and printer control facilities. It covers all the standards necessary for European comms networks, and can be upgraded for use with American Bell standards.



The on-board processor handles all handshaking and buffering necessary for the QL, along with modem and printer functions for auto-dialling and auto-answer. Modes available include 300/300, 1200/75, 75/1200 and 1200/1200, but in auto-scan mode the modem will set its own baud rate by sensing the returned carrier tone.

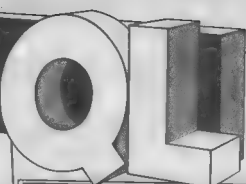
Additionally, the A 1000 can perform equalisation to improve poor lines, use the centronics printer interface while on line, and generate even parity and local echo for half duplex communications.

The comms software for the QL includes a 40-column colour videotext emulator for Prestel, and a 40/80 column terminal for non-videotext services. A more advanced package called QTERM with XMODEM file transfer capability is on the way.

Contact Strong Computer Services at Bryn Cottage, Peniel, Carmarthen, Dyfed, SA32 7DJ. 0267-231246.



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This pack contains the hardware and software you need to connect your QL to any of the popular modems for access to Prestel, Microtel and other data bases, bulletin boards etc.

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Alive and leaping

LEON HELLER'S LOOK AT PLANS TO EXPAND
THE QL FINDS CST AND SANDY WORKING
ON EXCITING HARDWARE SYSTEMS

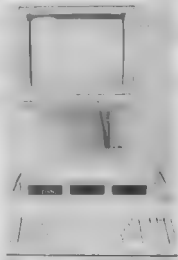
It appears that the QL as we know it is dead; Amstrad, who purchased the QL rights together with the Spectrum from Sinclair, seem determined to let the machine quietly fade away. However, there are around 80,000 enthusiastic users of the machine who might be unwilling to write off their investment in this excellent and under-rated machine, and would be interested in the proposed Thor upgrade announced by CST (to be marketed by Eidersoft in the UK and Dansoft on the continent), and the QL replacement presently being developed by Tony Tebby of QJUMP (he was largely responsible for the original QL design, and wrote the QDOS operating system) and Sandy (the people behind the excellent SuperQboard RAM expansion and disk interface). Users interested in upgrading their machine might find it difficult to decide which of these new machines to go for, so an attempt will be made to compare them on the basis of power, value for money, design, expansion capability, and compatibility with existing hardware and software.

CST is a small company based in Stevenage run by David and Vic Oliver, who have been involved with the QL since it first appeared, supplying a range of interfaces and expansion units. Prior to their involvement with the QL they worked on interfaces for the BBC micro, and did a lot of consultancy work for various companies, mainly in the Cambridge area.

Drives

The Thor is basically an upgrade of the standard QL machine. CST is taking standard QLS, removing the circuit board (the case, keyboard, power supply and Microdrives are discarded) and then mounting the QL board in a strong metal case, with a switch-mode power supply (very efficient and compact), a second board with 512K full-speed expansion memory (giving a total of 640K), disk interface, parallel printer port, one or two 3 $\frac{1}{2}$ " disk drives (floppy or Winchester), a mouse, and six sockets for up to 192 K of ROM (for a WIMP environment, ICE plus, or special purpose software).

A QL-compatible connector for a single peripheral connector (such as an EPROM programmer) is provided and an external

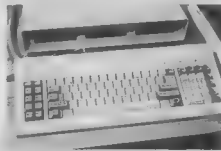


CST's Thor QL-based system

four-slot card cage can be connected if the user requires more expansion capability.

The hard disk interface uses the SCSI (Small Computers Standard Interface) standard, and can therefore handle a total of eight devices, which don't have to be hard disks - CD-ROM drives, optical memories and tape streamers could also be connected via the SCSI port, or even other computers, for very high speed data transfer.

A high-quality PC-type separate keyboard is provided, with special driver software in ROM giving all the standard QL functions as well as additional keys for such functions as scrolling the screen, performing a screen dump, etc. Foreign character sets and keyboard



The CST Thor in close-up

configurations are available by changing the driver software.

A battery-backed real-time clock is provided, with new driver software in ROM allowing date-stamping of files - very useful when backing-up files on a hard disk, and a parallel printer port is provided with spooling software in ROM.

Since the Thor is based on the standard QL, there should be no problems when running any of the existing QL software. CST, Eidersoft and Dansoft have an agreement with Psion enabling them to bundle the full 68000 Xchange package (as on the One per Desk) comprising enhanced versions of Quill, Abacus, Archive and Easel with a user-friendly interface and a powerful Task-Sequencing Language (TSL). The Psion programs will offer full multi-tasking. Qjump's Toolkit II will be incorporated in ROM.

The standard Thor will eventually be capable of being upgraded to a full 32-bit supernicro, using the Motorola MC68020 processor, with an optional 68881 maths co-processor. A minimum of 1 Mbyte of RAM will be provided. The graphics will be enhanced, with true hardware windowing.

Prices for the various Thor configurations are as follows:-
With one 3 $\frac{1}{2}$ " drive; £599
With two 3 $\frac{1}{2}$ " drive; £699
With one 3 $\frac{1}{2}$ " drive and one 20MB Winchester; £1399

Customers will be given an £80 trade-in allowance for their existing machine (provided the circuit board is unmodified). It might be possible to have one's existing 3 $\frac{1}{2}$ " drive incorporated, if they were originally supplied by CST, or they could be used as external drives, as the disk controller can handle up to four floppies.

Qjump is a small company, formed by Tony Tebby a couple of years ago to develop and manufacture high quality QL software and hardware.

The Qjump monitor/debugger and toolkit are very highly regarded, and they also produce an excellent low-cost EPROM programmer for the QL. Jonathan Oakley recently joined Qjump. He worked with Tebby on the original QL.

Sandy are a small Milan-based company with a lot of experience of switch-mode power supply and multi-layer PCB design and manufacture.

The QLT (denoting Quality), instead of being an upgraded QL, is a completely redesigned machine, using the full 16/32 bit MC68000 processor as in the Atari and Amiga machines, giving a 8 to 10 times improvement in performance over the standard QL. The QL uses the "stripped-down" 8-bit bus MC68008. The machine does not yet exist, as Tony Tebby and Jonathan Oakley of Qjump are still working on the hardware and software design, so the following description might be subject to change!

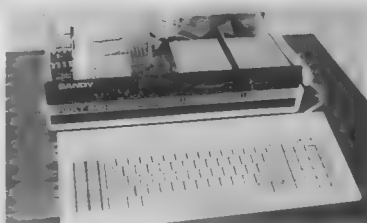
The machine will be housed in a low-profile metal case with a separate PC-compatible keyboard.

A minimum of 512K of RAM will be provided, expandable to 8Mbytes on the main board. A VME is fitted for additional memory and I/O. The VME bus was developed by Motorola for their MC68000 family, and is something of an industry standard. VME-compatible cards tend to be rather expensive, however. A switch-mode power supply will be incorporated.

One or two 3½" floppy disk drives will be included. One of the floppies may be replaced by a Winchester, using the SCSI interface, which may also be used to interface other high-speed devices.

An interrupt-driven parallel printer port and two interrupt-driven serial ports will be incorporated, as well as a mouse port and a joystick port.

A QL-compatible network facility with enhanced software will be fitted. An additional very high-speed synchronous serial port will give high-performance



Sandy's Q-XT gives just a taste of the planned QLT

plug-in module, allowing a much more sophisticated graphics system to be added at a later date, for CAD/CAM applications, for instance.

A very flexible sound generation capability will be provided by a digital/analogue converter, which will be capable of high quality music synthesis and speech synthesis, with appropriate software. The Commodore Amiga and Apple Macintosh use this approach. A MIDI output will be incorporated, for controlling synthesizers and other electronic instruments.

Upgrade

The operating system will be completely re-written (avoiding any legal problems with Amstrad), and will be upwards compatible with QDOS, so most existing QL software should run without any problems.

Either an enhanced version of the SuperBASIC interpreter will be supplied in ROM, or SuperBASIC in the form of an incremental compiler (giving a substantial speed increase with easy debugging). ISAM file handling might be incorporated (like JETSAM in Amstrad Locomotive BASIC).

It is probable that the Psion Xchange package will be available as an optional extra.

A fully integrated mouse driven pointer, menu and window environment will be provided, with true windowing.

Since the QLT incorporates the VME bus, which supports multiple processors, it will be quite easy to upgrade the machine merely by plugging in an MC68020 VME card, with additional memory cards if required. The existing MC68000 processor would then handle all I/O for the new 32-bit processor, with both processors sharing common memory. Other processors (such as Transputers) could easily be added in the same way.

The target price for the QLT is \$500 for the basic 512K machine with a single 3½" drive. Adding another floppy disk drive or Winchester will cost about the same as with the Thor: say £100 for the second floppy and £800 for the Winchester. There is unlikely to be a trade-in allowance for an existing QL.

It might seem strange that the QLT, with a considerably better specification, is likely to be somewhat cheaper than the Thor, but it is based on a single circuit board, whereas the Thor has two circuit boards, resulting in additional hardware and assembly costs. The QL boards used in the Thor will also require testing, which has to be paid for.

My advice is that users with standard unexpanded QLTs, who are thinking about upgrading their systems with additional memory and disk drives, should seriously consider ordering a Thor, as they will be getting what amounts to a brand new, considerably enhanced machine, with a full year's warranty, for little more than the cost of, say, a Sandy SuperQboard (additional 512K RAM, disk interface and parallel printer port) and twin disk drives with an Eldersoft mouse and ICE.

Expansion

Users, who like me, have already got a fully expanded machine, might be better off waiting for the QLT, as the CST Thor upgrade doesn't really add very much, apart from the software enhancements, and a neater looking package. In terms of functionality, the expanded standard QL is probably sufficiently powerful for most users at the present time. With its built-in VME bus and plug-in video circuitry the QLT offers much better expansion capabilities than the Thor, although these might be provided in the Thor with the MC68020 upgrade. The QLT would appear to be better for more advanced users who need the extra capability, and don't mind waiting a few months. ◀



A Thor graphics demo

communication with intelligent peripherals, making the machine ideal as the basis for sophisticated data logging applications and distributed processing, and a battery-backed real-time clock will give automatic date-stamping of files.

8-bit ROM cartridges and standard QL 8-bit peripheral cards may be fitted.

Enhanced graphics capability will be provided, with the existing 512 by 256 and 256 by 256 modes available, for existing QL software compatibility. The video controller circuitry will be in the form of a

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CST Thor Phone

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★ QW QL REPAIRS ★

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Windows on the QL

DIGITAL PRECISION'S LATEST QL RELEASES,
GIGA BASIC AND GIGA DESK, OFFER EASIER
PROGRAMMING AND WIMP FACILITIES.

LEON HELLER REPORTS

Giga BASIC and Giga Desk are two programs supplied on Microdrive which enhance the standard SuperBASIC interpreter supplied with the QL, and provide a WIMP (Window, Icon, Mouse, Pointer) environment for the QL. The ABC mouse is required with Giga Desk, and would also be needed if you wanted to access the mouse control functions provided by Giga BASIC.

Documentation for both programs is in the form of an A5 30 page booklet.



Screen manipulation with Giga Basic

Giga BASIC adds over 70 extensions to SuperBASIC. Its functions can be split into the following categories:-

- graphics
- sprites and animation
- numerical base conversions
- full screen SuperBASIC editor
- direct access to media
- multi-tasking clocks
- mouse-driven screen-oriented menus
- pull-down menus
- multi-tasking control commands
- programmable function keys
- other commands

There are far too many features to cover in this review, so I'll just discuss a few of the most interesting ones.

Several toolkit-type commands are provided for direct file access, such as GET, PUT, BPUT and BGET, SET-POINTER. Jobs may be deleted, suspended or activated from SuperBASIC. Software-generated sprites organised in a 20 by 20 matrix are available. Sprites may be defined for Mode 4 (four colours, high res.) or Mode 8 (8 colours, low res.).

Sprites may be moved around the screen, inverted and animated (set in motion automatically), and made to change direction when they reach the borders of the window, or appear at the other side (wrap-around), or killed when

they reach a border. A function called COLLISION returns the sprite number if two sprites overlay one another, otherwise -1 is returned. The location of any sprite can be ascertained.

In conjunction with the ABC Mouse, very easy-to-use menus can be programmed. Sprites can be defined, and then used as icons, which can be pointed at using the mouse. Macintosh-style pull-down menus can be programmed using the MENU command.

The function keys, F1 to F6, may be programmed using the KEY command. For example,

KEY 1, 'LIST' & chr\$(10)
would list a program whenever F1 is pressed.

A full-screen editor for SuperBASIC programs can be activated by typing SCREEN#dev, linenr, tab (default is SCREEN#1,1,3) which invokes the screen editor and positions the cursor at the line assigned to linenr and with the horizontal step size assigned to tab. A full range of editing functions is provided - the cursor may be moved anywhere in the window with the arrow keys, characters deleted, the window paged up or down, etc. User-defined fonts may be selected with SETFONT.

Real windowing is supported - a window background may be saved in memory before writing to it, and the background restored after the window is closed.

Giga Desk is rather confusingly referred to as EASE (Easily Applicable System Environment) in the manual. EASE overlays QDOS and allows the user to carry out all the functions of QDOS, such as file copying or executing programs, using symbols (icons) and the ABC mouse.

To get the most from EASE, a machine with expanded memory is required, otherwise, when a program is terminated, EASE will have to reload itself. EASE also works much faster on an expanded machine.

In operation, EASE is very easy (!) to use. A pointer is displayed on the screen, and may be moved with the mouse. Various icons or symbols are displayed (for instance, pictorial representations of Microdrives or disks), and operations may

be performed by pointing at the appropriate icon using the mouse, and clicking the button on top of the mouse.

Some useful directory options are provided. Files may be sorted by size, by date and by mark. The first two options should be self-explanatory.

EASE uses real windows, as described in the section on Giga BASIC, and up to seven windows may be used. Windows may be scrolled and moved around the screen.



Giga Desk's WIMP environment

Pull-down menus à la Mac are provided (Digital Research were threatened with legal action by Apple for using this technique in their first version of GEM, and rapidly changed it. I haven't heard if Apple are making threatening noises about EASE).

Again, in common with the Mac, a built-in calculator is provided, with trig functions, logs and memory.

A version of the well-known sliding block puzzle is provided, again in common with the Mac. I think this is a bit gimmicky.

EASE can be patched for use with most hardware configurations (floppy disks, Winchester disk, different printers, etc.). When EASE and the ABC mouse were first announced, several of the early customers were disappointed - the mice didn't seem very reliable, and there were problems with the software. These problems have now been overcome, and in the short time I had available for testing the system, it seemed to work very well. I've not yet had a chance to try the Eidersoft package, so I can't comment on how the ABC system compares with theirs, but Giga Desk (aka EASE) and the mouse appear to work very well, and are recommended if you want the added convenience and fun of a WIMP environment on your QL. ◀

An eye for QL graphics

JOHN TOROFEX ON THE GRAPHICS PACKAGE WHICH THREATENS TO OUTPERFORM ANYTHING ELSE ON THE QL

DP's Eye-Q is a graphics package intended for the production of artistic designs of any size on the QL screen. Designs may be saved to disk or Microdrive, for loading from SuperBASIC, or dumped to a suitable printer. An integral font editor allows different character fonts to be created, which may then be incorporated within the user's own programs.

Freddy Vaccha, the larger-than-life character who runs DP, tells me that Charles Southey, who developed Eye-Q, writes everything in assembler - he despises all high-level languages. Eye-Q is certainly very fast and slick in operation.

Freehand

The package is supplied on a single Microdrive cartridge, with 18 A4 pages of documentation, punched to fit the QL User Guide, or a suitable binder. The documentation is printed on red paper, to prevent it from being photocopied.

Backing up the package is made very easy by a nicely written clone program, which also configures the package for disk operation if required.

Eye-Q is loaded by a boot program on the cartridge or disk when the machine is reset. The program starts in what is termed 'Top Level', in which you can create freehand sketches with the cursor (a flashing dot). This type of cursor can be rather difficult to see, and I much prefer a cross type of cursor. A status window is displayed at the top of the screen giving information about the cursor position (X and Y co-ordinates), ink/paper colours, plotting mode, etc. The status window can be moved to the bottom of the screen or removed from the screen by pressing F2.

The rest of the screen is the work area, in which one's graphics are created. The area occupied by the status window is also part of the work area, and is re-displayed when the status window is moved. The cursor is moved using the arrow keys, and the movement accelerates when the key is held down for more than a second or so. The movement is very smooth and easy to control, and when the cursor hits the edge of the work area it stops. Diagonal movement of the cursor may be achieved by holding down two arrow keys at once, and the cursor may be moved in large

increments by pressing the ALT key while pressing the arrow key. The cursor position in the status window is constantly updated as the cursor is moved.



With the program in 'SKIP' mode, as it is initially, the cursor doesn't do any drawing. To draw something, the program must be placed in 'SET' mode by pressing F1. Drawing may now be done in the current ink colour. Lines may be erased by pressing F1 again to put the program into 'ERASE' mode, and then drawing with the paper colour to erase the line as required. An additional drawing mode is 'XOR', selected by tapping F1 again. The mode is always indicated in the status window. Thick lines can be drawn, or large areas erased, by altering the cursor width, which is achieved by holding CTRL down and pressing the W key. The maximum cursor size is 32 pixels. The cursor may also be narrowed. Ink, paper and strip colours are easily changed.

Text is easily incorporated in your design simply by typing it in - it will be positioned starting at the cursor location. All the standard character sizes and

spacings may be used, and these are easily selected.

Any enclosed area may be filled with colour, by moving the cursor into the area, and pressing F5. A menu will then be displayed, with a list of colours, allowing you to select which colours are to be treated as ink (boundary) and which are to be treated as paper (filled over) colours. This section of the manual is quite complex, and I think the user will need some experimentation to get the desired effect. The area fill function appears to be rather slow.

From the top level one may zoom in to enlarge any small detail of the screen, by pressing F4. The cursor may be moved to any part of the design, with the view displayed so that the cursor is always at the centre of the screen.

A large number of commands are provided via a command menu obtained by pressing F3 when at the top level. 'Rubber banding' may be selected, and this feature is operative when drawing circles/ellipses, lines/arcs and rectangles/blocks.

Storage

A files option is provided, so that your works of art may be saved to disk or Microdrive. Character fonts may be loaded and saved. Graphics are saved in compressed form, with a marked reduction in the storage required (each drawing would otherwise take 32K).

A demonstration picture is provided, and this may be loaded and worked on to get the hang of using this very powerful and complex package.

Up to now, the last word in graphics packages for the QL has probably been Talent's GraphiQL. Eye-Q has more features than GraphiQL, and is considerably easier to use, in my opinion. It is also about half the price. Like GraphiQL, one needs a considerable amount of artistic ability to get the most out of it, but it is capable of doing virtually everything the user wants, if he or she has the necessary skills. ◀

Product: Eye-Q

Micro: Sinclair QL

Price: £24.95

Supplier: Digital Precision, 222 The Avenue, London E4 8SE

NEW RELEASE!

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Graphic Toolkit provides a comprehensive set of extensions geared toward fast efficient manipulation of the QL's graphics that can be used in your own programs.

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PYRAMIDE

PYRAMIDE SOFTWARE PRESENTS:

MORTVILLE MANOR £19.95

Mystery Adventure Game

★★★★★ Review: 'Sinclair User' Sept '86

An urgent telegram, the anguished plea of an old friend and the chance to revisit your childhood home build up the Poe-like atmosphere.

It's an unusual adventure in both plot and execution. Motive, rather than monsters, makes up the game, which includes a novel use of window graphics.

Mortville Manor has a good smattering of characters, ■ of whom are relations of Julia, the friend who pleaded with you to come to the house, but was murdered before you got there.

The discussion mode lets you talk to the house guests, but the vocabulary is limited and your audience unresponsive if you don't ask the right questions. It's a hard slog but, coupled with the information gleaned from characters and the furnishings in their bedrooms, you'll suss out the mystery plot to usher the family fortune and heritage, Edgar Allan Poe and the inhabitants of Usherland would be pleased with this plot.

Mortville Manor is a show house for the mystery contained in Pyramide's latest game. It contains all the elements for the solution of the puzzle but is not, literally, the scene of the crime.

The game puts off a difficult conjuring trick. It has all the hallmarks of a classic who-dunnit but you must realise that the solution lies in how the characters live and react. Pyramide's adventure is for sticklers who like a good mystery and are willing to play for months to get into the game.

WANDERER £19.95

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Excellent start for Pyramide
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DEALERS: You can order from A&S, Microdealer Int., Lazer, European Software, Leisuresoft, any good distributor or direct from us.

TOUCH TYPIST TYPING TUTOR (VERSION 5)

Touch Typist (version 5) is the fastest typing tutor available for the Sinclair QL. It will teach you to type at up to 211 wpm with a fully automatic keyboard on the screen. It is 100% machine code and has been carefully designed to fit in a 64K, whilst still leaving a host of features. Customised entry to BASIC, a machine code and test a key-board feature is shown via the keyboard. A demonstration option. A teaching mode, adjustable targets to 11 wpm and 100% accuracy, very fast interactive keyboard, your results can be displayed on an auto scrolling graph, results can be saved to disk for future reference. The full version option will allow you to enter and customise all of the 700 lessons which can be saved to disk to create a library of custom lesson sets. Also included is a reward option where if successful, providing you meet the requirements you specify, you will gain a 100% Machine Code grade given as a reward for your progress. Touch Typist can be transferred to disk, transfer Micro-drive or RAMdisk with the copy program supplied and can be installed with the ESEC IV software, installed on Microdrive in a cartridge reader.

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QATS - QL Applications Traffic Supervisor (VERSION 2)

QATS is a utilities package and universal boot program designed to minimise your use of the keyboard by routing down on all the unnecessary, boring, keystroke needed to execute jobs, copy and delete files and display directories. And it's quick to use because it's menu driven. For example, to start a PSION program you press two keys - one to give the PSION menu and one to choose a program from that menu. When you quit the program you will return to QATS ready to run another PSION program or any of the easy-to-use QATS utilities. QATS stays in your QL all the time, always available. The comprehensive manual includes 20 step by step examples of get you started.

QATS allows you to:

- set up menus to run your own jobs (EXEC'able programs only)
- rearrange the supplied menus and add your own to suit your own style of working
- copy files quickly, selectively or not
- delete files, selectively or not
- control jobs running in the machine
- multi-task your own programs (if EXEC'able) in any combinations subject to the size of your QL
- run PSION jobs (expanded memory QL's only)
- display pagel directories showing filenames in alphabetical order with file sizes
- use the sophisticated wild card file facility - essential for managing floppy and hard disks

OUTPUT CONTROL - the first of a series of extensions planned for running with QATS, is a printing package (with extended printer driver) which will:

- print pagel directories showing filenames in alphabetical order with file sizes
- divide unformatted files into pages with headings
- print on continuous stationery or simple sheets
- print labels
- print mailing lists

QATS EPROM is also available. If the QATS EPROM is in the ROM slot at the back of your QL then you will save 16K of memory. However, if you want to use the ROM slot for something else QATS will automatically allow for its missing EPROM and load from backing store.

QL is a trademark of Sinclair Research Ltd. PSION is a trademark of QL Ltd.

To: COPE, 3 Langham Mansions, Earls Court Square, London SW5 9UH

Please send me:

copies of QATS @ £20 each = £

copies of Output Control @ £15 each = £

copies of QATS EPROM @ £10 each = £

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Alternative communications

Philip Bridges G6DLJ looks at the latest communication trends in ham radio

We tend to think of micro computing communications as modems, telephone lines and rather higher than average phone bills; however, this is not always the case.

Computer modems talk to each other by sending conventional tones along a telephone line, a sound channel which carries sequences of hi and low tones.

Remember back in your youth when you connected two empty baked bean cans to a piece of string, pulled it tight and talked to your friend at the other end of it? Well that though it sounds you could use those two baked bean cans as a link between modems as they would effectively act as phone line!

Therefore, most audio circuits will support the use of modems and computers. Radio hams make use of this facility by replacing the conventional telephone line with a two way radio circuit. On the popular VHF band (144MHz) error free two way data transmission is in daily use with a system called AX-25 packet radio which stems from existing 'handshake' principles. 'Handshake' means that a block of data (a line of text or two) is sent to the receiving station who in turn issues an OK I've got that, let me have the next message please. If the transmitting station doesn't receive the OK message it resends it until it gets a reception verification before sending the next block.

This all takes place very quickly (typically over 100 characters per second) and because of the OK messages, 100% error free file transfer can be achieved. Of course the use of a radio link does give restrictions of range: the average VHF path is usually about 30-50 miles although greater distances can be obtained with more elaborate equipment.

To overcome problems of range, the AX-25 Packet radio system allows messages to 'hop' from station to station, in fact up to eight stations can be used in a daisy chain fashion to pass the message on with full error correcting all the way. One exciting extension of this process has been made by the recent launch of a satellite called JAS-1 which has an on-board memory capable of storing these

messages and re-directing them as it orbits the earth.

A typical AX-25 Packet radio modem (TNC, or Terminal Node Controller) performs more or less the same function as a telephone modem but has extra enhancements built in. For example it has a cpu and Ram which is capable of storing text and messages. It is designed to work on their own, the micro being used only to interrogate the contents of the Ram in the TNC. Connection to the micro is usually the standard RS232 set up with a simple bulletin board driver program (dumb terminal).

Each unit will also act as an intermediate station if requested to by another user and many will allow several conversations to take place almost simultaneously, thereby making maximum use of the limited amateur radio spectrum.

Packet radio is not used to save money on phone bills of course, the system is still in the experimental stage and is used to pass messages about amateur radio around the UK. Many other countries have allowed radio hams to make use of Packet radio so that shortly a world wide Packet radio network will come into being.

Much of the exploratory work being carried out by hams now may have commercial benefits and so generally official licensing bodies in many countries tend to encourage development of the system.

Packet radio in its fullest implementation is not yet permitted in the UK but discussions are taking place between the DTI and Radio Society of Great Britain to incorporate it into the UK amateur licence. Radio amateurs are often involved in emergency communications and of course Packet radio could be used very effectively under such circumstances.

There are many other ways in which micro computers can be used for communications. For example, most micros have a cassette port which itself is usually an efficient modem, and BBC owners have been plugging their machines into two way radio equipment for several years now sending mode seven screens, Wordwise files and pro-

grams with very encouraging results.

There are several organisations in the amateur radio fraternity which document these techniques widely (incidentally, everyone is allowed to listen to amateur radio transmissions, not just hams!). It is also worth noting that you do not have to be a technical whizz to become a UK radio amateur, a serious interest in communications is usually enough to set you on the right track.

Further information can be obtained from the following:

Magazines

There are a few dedicated radio magazines on the market, and also some electronics magazines have good radio sections.

Ham Radio Today

Practical Wireless (personally recommended)

Everyday Electronics and EM (Also personally recommended)

Radio Communications Magazine
Amateur Radio

Addresses

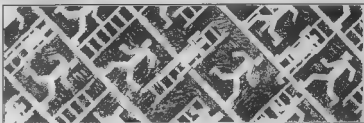
Here are the addresses of most of the societies, etc, you may wish to contact:

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Wales SA19 6EW.
Phone: 0558 822286 |
| RAMTOP | - c/o TRew, R P Butcher,
Great Billing Rectory,
Great Billing, Northants
NN3 4EO. |
| RSGB | - Lambda House, Cranborne
Road, Potters Bar,
Hertfordshire EN6 3JW.
Phone: 0707 59015.
Viewdata board: 0707
54777. |
| Hamnet | - 0482 497150 300 baud. |
| Mailbox 80 | - 051 428 8924 1200 baud
and 300 baud. |

Furniture

by Richard and Jackie Gain

This week features the final part of this useful utility program which allows you to re-arrange your home until it looks more like a home and less like the inside of a junk shop.



```

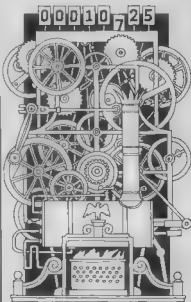
4080 GO TO 4020
4099 REM MOVE FURNITURE
4100 IF F#(FCL,16)="" THEN LET S1=F#(FCL,1,0)
4101 LET S2=F#(FCL,21) LET X=F#(FCL,31)
4102 LET Y=F#(FCL,41) GO TO 4130
4110 LET N=1 LET Y=174
4120 LET S1=F#(FCL,1) LET S2=F#(FCL,21)
4130 SUB 4800
4130 PRINT #3:AT 0,0:"5,6,7,8:MOVE OBJECT
4131 S=SET STEP=F#STEP:9=TURN 90 DEGREES
4132 NEXT OBJECT
4135 IF INKEY#="" THEN GO TO 4135
4140 LET I#=INKEY#: IF I#="" THEN GO TO 4140
4150 IF I#="9" THEN GO SUB 4900
4160 IF I#="0" THEN GO TO 4300
4170 GO SUB 4800: REM REMOVE
4180 LET X=X+STEP:I#="8" AND X#(255-S
4181 STEP)*STEP:I#="5" AND X#STEP-1)
4190 LET Y=Y+STEP:I#="7" AND Y#(176-STEP
4191 )-STEP:I#="6" AND Y#(176-STEP-1)
4200 GO SUB 4800: REM REDRAW
4210 IF I#="9" THEN GO TO 4250
4220 GO TO 4140
4230 REM CHANGE STEP
4240 PRINT #3:AT 0,0:"ENTER NEW STEP 512
4241 E (1 TO 9)
4250 LET I#=INKEY#: IF I#="" OR INKEY#
4251 "9" THEN GO TO 4270
4260 LET STEP=VAL I#: GO TO 4130
4270 REM SET OBJECT
4280 LET F#(FCL,1)=S1
4290 LET F#(FCL,21)=S2
4300 LET F#(FCL,31)=X
4310 LET F#(FCL,41)=Y
4320 LET F#(FCL,16)=""
4330 GO SUB 4800
4370 PRINT #3:AT 0,0:"PRESS C TO COPY TH
4371 E SCREEN PRESS F TO FINISH OR N FOR
4372 NEXT
4375 IF INKEY#="" THEN GO TO 4375
4380 IF INKEY#="C" THEN GO TO 4380
4390 IF INKEY#="F" THEN COPY : FOR N=1
4391 TO FCL:PRINT N:"TAB 45F#(N): NEXT N
4400 IF INKEY#="F" THEN GO TO 1000
4410 GO TO 4020
4809 REM DRAW OBJECT
4810 OVER 1: PLOT X,Y
4820 DRAW S1,0: DRAW 0,-S2
4830 DRAW -S1,0: DRAW 0,S2-1
4840 OVER 1: RETURN
4900 REM TURN 90
4910 GO SUB 4910
4920 LET "S=S1
4930 LET S1=S2
4940 LET S2=S
4950 LET "X=X1 LET Y=Y174
4960 GO SUB 4800
4970 RETURN
5000 REM SAVE DATA
5010 GO SUB 7000: IF S0=1 THEN GO TO 55
5020
5020 SAVE "M":S0(1) DATA R1)
5030 VERIFY "M":S0(1) DATA R1)
5040 SAVE "M":S0(2) DATA R1)
5050 VERIFY "M":S0(2) DATA R1)
5060 SAVE "M":S0(3) DATA R1)
5070 VERIFY "M":S0(3) DATA R1)
5080 GO TO 5100
5090 PRINT "PREPARE TAPE FOR SAVING"
5100 SAVE S0(1) DATA R1)
5110 SAVE S0(2) DATA R1)
5120 SAVE S0(3) DATA R1)
5130 GO TO 1000
5800 REM LOAD DATA
5810 GO SUB 7000: IF S0=1 THEN GO TO 63
5820
5820 LOAD "M":S0(1) DATA R1)
5830 LOAD "M":S0(2) DATA R1)
5840 LOAD "M":S0(3) DATA R1)
5850 FOR N=1 TO 40: IF F#(N,1)=0 THEN LE
5851 T "F#(N,1) GO TO 6170
5860 NEXT N
5870 FOR N=1 TO 40: IF R1(N)=0 AND R1(N
5871 )=0 THEN LET "N=N+1: GO TO 6090
5880 NEXT N
5890 GO TO 1000
5900 PRINT "PREPARE TAPE FOR LOADING &
5901 LAY"
5910 LOAD S0(1) DATA R1)
5920 LOAD S0(2) DATA R1)
5930 LOAD S0(3) DATA R1)
5940 GO TO 6100
7000 REM TAPE / WRITE
7010 CLS : LET S0=
7020 PRINT #3:AT 0,0:"ARE YOU USING TAPE

```

```

OR WRITE:WRITEPRESS T OR M
7030 IF INKEY#="" THEN LET S0=1
7040 IF INKEY#="" THEN LET S0=2
7050 IF NOT S0 THEN GO TO 7030
7060 IF S0=2 THEN CAT :
7070 INPUT "ENTER FILENAME PLEASE:":I#
7080 LET I#=" " THEN LET I#="1" : Y
7090 FOR N=1 TO 2: LET S0(N)=I#*STR$ N:
7100 NEXT N
7110 RETURN
9999 STOP
9999 ERASE "M":("FURNITURE": SAVE "M":
9999 ("FURNITURE" LINE 1
9999 VERIFY "M":("FURNITURE"
9999 STOP
9999 SAVE "FURNITURE" LINE 1
9999 PRINT "ENDING AND PLAY TO VERIFY"
9999 VERIFY "FURNITURE"
9999 STOP

```



Multi-Dump

by D Farrow

This program will dump a multi-colour hi-res picture to the printer using various degrees of grey, ie, a true representation of the picture is printed.

The screen picture should be loaded into the computer at 8192-16191 (\$2000-\$3F3F) and then the program loaded and run. The shades of grey can be selected with the four function keys

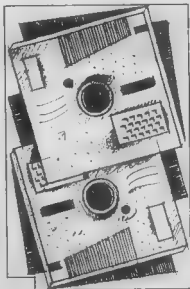
and when these are to your satisfaction the picture can be dumped by pressing the left arrow key.

To abort the dump, which takes about 13 minutes on the MPS801, press Run/Stop and Restore.

```

70 FORT=4915270501645STEP2
80 RERR=200004R
90 HI=INT(R/256):LO=HI*256
100 POKET,LO:POKET+1,HI
110 NEXT
120 IFDCO16646045THENPRINT"ERROR IN DATA":STOP
130 PRINT"DATA O.K. 5VS49152 TO DUMP"
140 END
150
200 DATA15273,4493,43472,36126,53272,55465,5773,43472
210 DATA35897,53288,6589,43472,36896,49383,425,59533
220 DATA3456,36896,49385,337,68045,6336,59566,48576
230 DATA3387,3881,2576,2576,58765,6336,59822,48576
240 DATA3387,38733,36288,49381,44568,49386,60349,36288
250 DATA3382,160,58797,59388,1024,153,39173,1536
260 DATA35345,44294,49382,153,39394,55552,153,39396
270 DATA56040,53448,44767,49383,60349,36288,53281,50597
280 DATA1585,64280,50597,1225,5104,1481,3688,1737
290 DATA12272,969,15856,14793,22080,33858,61120,49383
300 DATA3389,51648,53252,43323,36896,49383,57932,61120
310 DATA4364,59565,51648,53252,43305,36896,49384,57932
320 DATA51120,49385,59821,51648,53252,43287,46096,49383
330 DATA57932,61120,49386,60077,51648,53252,43269,36896
340 DATA49386,11884,53184,0,258,259,3887,19456
350 DATA49408,65535,65535,65535,65535,65535,65535,6192
360 DATA159,48416,43519,41476,48964,8447,65466,49184
370 DATA4127,9136,65481,4889,53792,43519,8205,65498
380 DATA33752,8447,65498,2217,33792,43519,36159,50859
390 DATA425,33581,43459,36896,50861,169,36749,36291
400 DATA50864,37261,36291,50856,169,36493,14531,35757

```



```

410 DATA50867,50862,34445,44483,50868,238,34701,6339
420 DATA34733,51651,53503,43272,36896,50858,11644,6338
430 DATA34477,10691,36350,50856,34733,10621,36897,50857
440 DATA44312,50856,1077,34189,14531,1705,44285,36291
450 DATA50853,44312,49408,64389,65453,34240,6396,36269
460 DATA19139,19018,33677,44227,50851,49288,61695,6161
470 DATA84421,16489,64389,64677,361,64645,19480,49578
480 DATA44312,50856,63529,34957,6339,64421,34925,34243
490 DATA42491,28156,30057,64645,44312,50861,1833,33677
500 DATA6339,64421,33649,34243,42491,27132,34048,6396
510 DATA34220,47555,50867,33933,6339,43884,34101,48461
520 DATA45312,11771,50852,35463,43459,34103,34229,44312
530 DATA50858,201,5872,457,4645,713,3824,969
540 DATA2800,19942,50858,15406,19251,49678,35503,47855
550 DATA49383,15469,44483,50858,457,3056,713,8432
560 DATA639,18672,56149,6338,36524,44483,50863,39545
570 DATA36291,50863,37837,31171,50862,37005,12651,49883
580 DATA44056,50862,37293,31171,50874,37261,44483,50866
590 DATA41593,36291,50868,44312,50863,43641,36291,50863
600 DATA37837,31171,50868,37005,19681,49883,44056,50862
610 DATA66781,31171,50874,36742,44483,50864,41593,36291
620 DATA50864,44214,50865,33949,36291,50859,37549,31171
630 DATA50862,37517,6339,36731,31171,50860,36749,44483
640 DATA50864,45689,36291,50864,44312,50865,43641,36291
650 DATA50865,37549,31171,50868,37517,31171,50862,36525
660 DATA51651,61447,12459,49485,11680,50868,36910,20163
670 DATA50863,11880,50865,37422,20173,50865,44486,50861
680 DATA87549,2499,39226,52736,37037,2499,39226,50862
690 DATA87293,2499,6520,65420,36781,2499,6520,65430
700 DATA36394,44483,50861,51461,1889,14924,43457,6205

```

READY.

Programming: Amstrad 464

Road Toad

by Graham Tyson

Road Toad is based on the arcade game Frogger but varies in that once your frog reaches the central riverbank you must leap into the sidecar

of the motorbike. Then jump onto the roof of the truck or car before trying to land on the bonus sections of the opposite riverbank.

The program is all machine code giving smooth and, on later levels, very fast animation. The listing is quite long and

will be presented over three weeks. So, if you can't face the typing and want a cassette version with a title screen send £2 (no cheques so use recorded delivery) to Graham Tyson, 39 York House, Idlethorpe-Way, Thorpe Edge, Bradford BD10 9ES.



```

101 CALL ABC02:CALL ABC04:CLEAR:MODE 2:a
102 dcr=87538
103 FOR i=1 to 123 TO 480:total=0
104 READ c#
105 datum=VAL("%c"%c#)
106 POKE addr,datum
107 addr=addr+1
108 tot=tot+datum
109 NEXT n
110 READ check
111 IF check<tot THEN 120
112 NEXT i:for i=tot to 4:READ c#:POKE
113 addr+last,VAL("%c"%c#):NEXT i:ast
114 CURLOCATE 1,0:PRINT "Machine code o
115 program generated at address: 30000"
116 LOCATE 1,0:PRINT "Set up your TAP
117 e to
118 DISC up++"
119 LOCATE 1,0:PRINT "Now type "i0CR#
120 "RUN 12345CR#(241)" "ENTER"
121 LOCATE 1,12:PRINT "The machine co
122 de program will be saved as the"

```

[illegible]

29 1474 35,02,36,37,47,73,69,19,80,35,0
30 1475 31,00,36,32,01,59,32,80, 2626
31 1476 35,01,32,32,80,32,80,35,01,35,0
32 1477 35,01,32,32,80,35,01,35,0, 2649
33 1478 64,70,61,00,79,03,18,88,30,72,
5,60,29,19,5E,18,28,15,FE,62,28, 2818
34 1479 15,45,89,28,12,FE,73,28,13,5E,0
9,28,75,63,86,75,0,0,5C,7E,76, 2322
35 1480 18,06,02,65,79,12,09,00,48,79,1
9,05,00,21,00,5E,22,5E,7,22,59, 1929
36 1481 71,20,5E,76,39,79,7E,75,FE,27,3
2,18,20,05,7D,FE,14,08,0F,11,10, 1701
37 1482 27,97,52,52,34,89,7F,0C,32,59,7
F,18,5E,7F,60,63,98,16,20,7F,7F, 2015
38 1483 FE,68,38,7F,11,59,30,87,ED,52,3
A,5A,7F,31,22,5A,7F,18,05,7E,FE, 2544
39 1484 01,20,05,70,FE,64,38,0F,11,64,0
C,87,ED,52,34,5E,7F,3C,32,5E,7F, 1812
40 1485 12,57,7F,FE,0A,39,0F,11,09,00,8
7,ED,52,34,5E,7F,3C,32,5E,7F,18, 1874
41 1486 01,20,7D,32,FE,7F,69,FE,06,20,1E,FE
09,07,30,12,47,21,7E,76,11,65,6E, 1954

139 DATA 19,19,00,11,09,76,01,05,09,09,9	8,01,76,26,76,00,00,09,34,75, 2353	232 DATA 00,21,06,00,09,F9,B8,11,09,00,2
0,09,14,00,14,00,14,00,15,00,28, 1422	171 DATA 7F,06,19,32,75,7F,09,90,7A,24,7	1,00,7F,00,F9,B8,11,22,FF,21,00, 2195
140 DATA 00,14,00,14,00,15,00,14,00,14,1	6,7F,11,0F,00,30,0F,52,22,76,7F, 2213	293 DATA 90,00,F9,B8,11,09,00,21,14,00,0
0,15,09,28,09,14,00,15,00,28,00, 260	172 DATA 11,00,00,19,29,7F,0F,03,25,20,2	6,7F,B8,11,00,01,21,08,00,00,00, 2216
141 DATA 15,09,14,00,15,00,28,00,14,00,1	0,07,FE,00,26,24,00,AC,74,36,75, 1922	294 DATA B8,00,07,7B,11,09,00,21,08,00,0
4,10,28,00,28,00,15,00,16,00,28, 240	173 DATA 7F,FE,0F,28,00,34,76,7F,04,73,3	0,00,00,00,07,7B,18,25,11,AC,00, 2416
142 DATA 00,10,00,14,00,00,00,28,00,28,0	0,74,7F,21,55,76,00,40,00,00,00, 2580	295 DATA 21,09,00,00,F9,B8,11,09,00,21,0
0,28,00,28,00,28,00,15,00,32,00, 360	174 DATA 00,00,76,24,79,7F,19,32,7F,7F,20,0	6,0F,00,F9,B8,11,52,FF,21,00,00, 2243
143 DATA 29,00,29,00,29,00,00,00,30,30,1	1,7F,00,30,7F,09,00,00,76,21,5E, 2733	296 DATA 00,F9,B8,11,09,00,21,14,00,00,F
5,26,00,09,00,00,00,00,00,00, 30, 391	A,75 DATA 75,00,44,00,05,04,00,19,00,13,0	9,00,00,11,00,00,21,04,00,00,00, 2225
144 DATA 00,00,00,00,00,00,30,30,7F,7F,0	B,00,00,74,24,76,7F,06,04,00,29, 2999	297 DATA 98,3E,48,00,00,00,3E,49,00,00,II
5,0F,20,09,20,09,76,22,0E,76,03, 150	176 DATA 80,10,00,28,2B,00,00,2F,74,06,3	B,11,00,00,21,05,00,00,00,00, 2418
145 DATA 15,79,7F,27,20,7F,34,76,7F,FE,3	2,00,19,00,10,00,00,00,2F,74,06,3, 2451	298 DATA 05,21,78,7F,7E,05,05,00,00,00,0
9,00,24,00,76,22,0E,76,03,15,79, 2515	177 DATA 02,11,79,07,00,04,02,34,76,7F,3	1,23,01,10,05,11,0E,01,21,04,00, 2667
1,46 DATA 7F,00,20,0F,34,76,7F,FE,39,00,2	0,FE,00,28,21,32,76,7F,FE,02,20, 2145	299 DATA 00,00,00,00,15,21,39,7F,7E,05,0
A,54,76,22,0E,76,03,15,79,7F,07, 2747	178 DATA 06,21,7F,07,00,05,7F,3E,36,32,7	5,00,00,00,00,23,01,10,05,00, 3059
147 DATA 21,0F,34,76,7F,FE,39,00,24,56,7	4,7F,3E,05,32,75,7F,21,56,07,21, 1943	210 DATA 7F,24,76,7F,00,05,7F,11,64,00,2
6,22,0E,76,03,15,79,FE,00,20, 53, 2587	179 DATA 76,7F,00,05,7F,09,01,00,00, 79,7	1,04,00,00,00,00,21,33,7F,FE,09,49, 2304
148 DATA 34,55,7F,FE,00,30,32,34,5F,7F,0	F,34,75,7F,04,76,FE,00,21,38,34,90, 2364	211 DATA 7F,09,34,73,7F,FE,00,04,00,0
6,02,47,34,74,7F,B8,30,03,48,47, 1864	180 DATA 75,00,30,02,05,00,38,75,21,59,7	5,00,04,04,70,FE,02,20,55,FE,03, 2506
149 DATA 79,90,05,03,30,12,00,93,70,24,9	F,11,33,7F,01,00,00,00,00,00, 2011	212 DATA 34,39,34,75,7F,FE,27,20,1F,24,6
B,7E,11,02,00,19,22,76,7F,00,40, 2095	181 DATA 70,21,5F,11,10,48,7E,00,00,0,4	5,7F,11,44,06,07,00,52,00,24,76, 2209
150 DATA 74,3E,00,30,7F,24,00,76,12,0	7,00,11,FE,00,21,76,00,00,00,00, 2055	213 DATA 7F,07,00,52,22,76,7F,70,FE,44,3
5,76,00,07,7F,36,7F,7F,04,19,32, 1387	182 DATA 76,04,21,02,74,05,05,7E,00,00,0	0,07,11,45,00,19,22,76,7F,34,73, 1976
151 DATA 75,7F,00,93,74,24,76,7F,11,0F,0	B,01,00,23,00,05,00,00,00,19,00, 2690	214 DATA 7F,AF,32,73,7F,20,69,7F,00,24,7
0,37,0F,52,22,76,7F,00,0F,79,FE, 2595	183 DATA 00,10,00,00,00,00,00,45,40,45,2	1,7F,00,19,00,00,00,34,73,7F,30, 2604
152 DATA 96,20,00,34,5F,7F,FE,02,00,00,9	0,20,4F,56,45,52,00,19,00,00,21, 2201	215 DATA 22,73,7F,00,00,70,34,75,7F,FE,9
3,70,3E,AF,30,7F,24,76,7F,34, 2376	184 DATA 00,02,06,08,00,00,00,00,00,00,0	0,00,24,90,7E,11,02,00,19,22,76, 2275
153 DATA 55,79,76,00,00,11,40,00,00,07,0	5,00,77,00,00,22,01,00,00,00,00, 2601	216 DATA 7F,09,34,73,7F,FE,3F,20,20,00,0
0,02,22,76,7F,03,4F,34,5F,10,28, 2244	185 DATA 80,11,00,00,34,75,7F,FE,0F,1	B,67,7F,21,90,00,00,00,52,00,24, 2717
154 DATA 30,47,00,30,9F,47,00,37,1F,FE,17,0	1,00,7F,00,20,18,34,74,7F,FE,48, 2496	217 DATA 76,7F,19,22,76,7F,70,FE,90,38,0
0,02,10,00,11,00,00,07,02, 52,32, 2071	186 DATA 30,00,00,00,70,7F,00,93,74,24,7	9,11,48,00,AF,00,52,22,76,7F,34, 2069
185 DATA 76,7F,11,50,00,19,23,07,FE,00,0	6,7F,21,22,76,7F,00,00,00,00,34, 2039	218 DATA 73,7F,00,30,73,7F,20,67,7F,00,2
A,6F,79,23,07,FE,00,0A,6F,70,00, 2480	187 DATA 75,7F,FE,00,74,7F,FE,00,20,18,3	A,6F,7F,00,00,00,34,75,7F,FE,57,20, 2496
155 DATA 04,7A,0A,2A,34,22,0E,76,03,57,7	A,74,7F,FE,00,3E,11,30,32,74,7F, 1905	219 DATA 1F,24,65,7F,11,64,04,07,00,52,4
9,FE,AF,00,34,76,7F,00,00,FE,40, 1926	188 DATA 00,00,00,7F,00,00,00,00,00,00,0	B,2A,76,7F,07,00,52,22,76,7F,00,00, 2542
157 DATA 00,00,00,00,7F,00,00,74,24,7	5,00,74,00,00,00,7F,00,00,00,7F, 2724	220 DATA 7F,64,00,7F,11,48,00,19,22,76,7
6,7F,11,0F,00,00,00,22,76,7F, 2554	189 DATA 00,00,00,00,00,00,00,00,00,00,0	F,34,73,7F,30,32,73,7F,2A,65,7F, 1724
158 DATA 11,00,00,70,FE,02,20,00,24,75,7	9,7F,00,7E,42,42,46,46,45,7E,00, 2183	221 DATA 00,24,50,70,00,00,00,34,75,7F,FE,A
F,11,00,14,00,00,00,47,00,11,0A, 1291	190 DATA 19,23,00,00,00,00,00,00,00,00,0	F,20,23,24,00,7F,11,64,00,00,00, 2892
159 DATA 00,10,34,FE,00,00,00,74,76,7F,1	7,7E,40,40,7E,00,70,04,04,76,06, 988	222 DATA 52,00,0A,76,7F,07,00,52,22,76,7
1,10,04,0E,00,00,47,00,11,0A,00, 1251	191 DATA 76,7F,00,40,40,40,00,00,00,00,0	F,70,FE,F4,30,00,FE,40,30,07,11, 2465
160 DATA 19,26,FE,30,20,10,24,76,7F,11,1	0,7E,42,40,7E,00,46,7E,00,7E,44, 1422	223 DATA 00,00,19,22,76,7F,34,73,7F,30,3
0,04,0E,00,20,47,00,11,00,00,05, 1295	192 DATA 40,7E,00,42,7E,11,7E,42,04,18,3	2,73,7F,2A,63,7F,20,6B,7F,00, 2014
161 DATA 12,FE,44,20,00,24,76,7F,11,0,0	0,00,40,00,24,24,7E,40,42,7E, 1332	224 DATA 00,21,00,00,22,98,7E,21,00,00,2
4,7E,00,00,47,00,11,00,24,00,00, 1563	193 DATA 00,7E,42,42,7E,00,00,00,00,00,0	2,59,7F,22,5B,7F,22,50,7F,26,10, 1746
162 DATA 76,19,22,0E,76,00,00,74,00,57,7	1,00,00,00,00,00,00,00,00,00,00, 432	225 DATA 22,5F,7F,3E,30,61,7F,3E,31,3
9,56,64,00,19,00,10,00,21,93,74, 2699	194 DATA 00,00,00,00,00,00,00,00,00,00,0	2,62,7F,21,FE,01,22,63,7F,21,65, 1810
163 DATA 00,34,91,00,00,74,34,75,7F,30,3	0,00,00,00,00,00,00,00,00,00,00, 0	226 DATA 04,22,65,7F,21,94,00,22,67,7F,2
2,5F,7F,FE,02,20,0F,21,46,00,22, 2436	195 DATA 00,00,00,00,00,00,00,00,00,00,0	1,15,06,22,69,7F,21,90,00,22,68, 2130
164 DATA 69,7F,21,50,00,21,7F,00,22,07,7	0,00,00,00,00,00,00,00,00,00,00, 0	227 DATA 00,21,90,00,22,60,7F,21,9E,00, 2005
8,FE,00,20,0F,21,99,00,00,22,67,7F, 1398	196 DATA 00,00,00,00,00,00,00,00,00,00,0	2,6F,7F,21,90,00,22,71,7F,3E,0F, 2005
165 DATA 21,0A,00,22,65,7F,30,07,7F,FE,0	0,00,00,00,00,00,00,00,00,00,00, 0	228 DATA 32,75,7F,3E,26,32,74,7F,21,56,0
4,20,0F,21,66,04,22,65,7F,21,50, 2145	197 DATA 00,00,00,00,00,00,00,00,00,00,0	7,22,76,7F,3E,00,00,7F,21,00, 1679
166 DATA 00,22,00,7F,03,57,70,FE,05,20,0	A,00,AB,B0,21,07,7A,11,00,00,00, 1581	229 DATA 00,22,79,7F,3E,01,32,00,7F,19,2
F,21,FE,00,22,63,7F,21,00,00,22, 2400	198 DATA 34,3E,7F,05,05,05,00,00,00,00,0	A,56,7E,11,00,7E,00,10,05,01,0A, 1815
167 DATA 80,7F,03,07,7F,3E,00,20,0F,3E,4	1,00,19,01,00,30,18,01,3E,03,00, 3242	230 DATA 00,00,00,11,66,07,00,3E,0F,0,3
2,22,62,7F,10,00,3A,61,7F,FE,02, 1991	199 DATA 00,00,00,00,00,00,00,00,00,00,0	0,04,01,00,00,00,00,00,00,00,00, 2059
168 DATA 38,04,30,32,61,7F,11,62,02,21,0	5,00,00,FE,01,00,00,01,00,00,00, 3543	231 DATA 7E,11,00,00,00,00,00,00,00,00,0
4,00,00,00,00,34,00,7F,FE,64,38, 2175	200 DATA 04,01,01,00,34,00,00,00,00,00,0	B,7E,36,0F,7F,FE,40,30,0E,07,34, 1701
169 DATA 00,3E,63,32,00,7F,16,00,FE,0A,3	6,21,77,07,00,05,7F,21,7F,07,00, 2693	232 DATA 62,7F,3F,00,00,00,7F,16,00,19,1
8,05,06,06,14,18,7F,05,06,06,00, 2308	201 DATA 00,00,00,00,00,00,00,00,00,00,0	0,08,AF,22,5F,7F,11,0A,0F,19,7A, 1889
170 DATA 00,00,11,00,00,21,00,00,00,00,2	1,00,00,21,00,00,00,00,00,00,00, 2401	

MemEdit

by Alastair Scott

MemEdit allows you to inspect and change, if possible, any part of the Amstrad Rom or Ram.

When run you are prompted for a start address (in hex) between zero and FFFF. Depending on the address various options become available.

0-3FFF Ram or Basic Rom. If Ram is chosen MemEdit starts at &170. Don't change any values here - you could crash the computer.

4000-BFFF Ram
C000-FFFF 0 = Basic Rom
7 = CP/M or Disc Rom
Any other numbers if you have external Roms fitted.

You should now see a page of 128 bytes and their Ascii equivalents. The arrow keys are used to move the inverse cursor around.

Copy changes the bytes at the current address.

S inserts a string (typed from keyboard).

E moves display onto next page.

```

30 ON BREAK GOTO 1100
40 ON ERROR GOTO 1200
50 GOSUB 1010
60 GOSUB 890
70 WHILE TIME
80 GOSUB 720
90 WHILE "not" endFlag
100 GOSUB 580
110 GOSUB 150
120 WEND
130 WEND
140 ' Cursor movements
150 x=y/yel
160 IF NOT change THEN 450
170 CLS:PRINT#5,"arrow keys: C=up, D=
down, E=end, S string":
180 WHILE INKEY(15) AND INKEY(16) AND IN
KEY(10)
190 ad=ad+80:GOSUB 540
200 PEN#2:PAPER 41:LOCATE(2,x,y):PRIN
T#2,HEX(ad,y/2)
210 doPrdy=ad+80:GOSUB 580
220 doYndY INKEY(15) AND INKEY(16)
230 doC=NOT INKEY(15) AND INKEY(16)
240 PEN #2:PAPER #2:LOCATE(2,x,y):PR
INT#2,HEX(y/2)
250 x=x+30:doYndY
260 IF ... THEN x=y ELSE IF x+22 THEN x =
22
270 IF y=1 THEN y=1 ELSE IF y = 16 THEN y =
16
280 WEND
290 IF NOT INKEY(15) THEN 450
300 IF NOT INKEY(16) THEN 370
310 ' String into memory
320 GOTO 1150:CLS:PAPER#5,S:PRINT#5
330 FOR a=1 TO LEN(s):POKE a+1,ASC(M
ID$(s,a+1)):NEXT a
340 GOSUB 580
350 GOTO 170
360 ' hex entry
370 SOUND 1150:GOSUB PRINT#5,S:PRINT#5
enter 2-digit hex byte:
380 mid$="":FOR a=1 TO 2:GOSUB 510:GOSUB
540:NEXT
390 LOCATE(2,x,y):PRINT#2,HEX
400 MOVE #Addr:VAL(HEX(a+1))
410 LOCATE(2,x,y):PRINT#2,CHR$(1)CHR$
(255)IF Asc(2)
420 WHILE INKEY(15) WEND
430 GOTO 170
440 ' hex for 16 addresses
450 GOSUB 1100:CLS:PAPER#5,S:PRINT#5 A

```

```

ad=address: NEXT a:PRINT#5
460 ' start while INKEY(15) AND INKEY(16)
PAPER 41:LOCATE(2,x,y):
470 IF ... THEN start=start+80:RETUR
N
480 IF ... THEN start=start+80:RETUR
N
490 endFlag=1:RETURN
500 ' Press valid hex digit
510 ' valid hex digit: 0-9 A-F:GOSUB 580:IF
HEX(HEX(HEX(PEN#1:INKEY(15)))=HEX
520 GOTO 150:RETURN
530 ' Get byte from RAM or ROM
540 IF rom=0 THEN BYE=PEEK(ad):RETURN
550 IF rom=0 THEN CALL 58475:Bye,ad:RE
TURN
560 CALL 58459:ad,Bye:PRINT#2,Bye
570 ' Print 128 bytes with ASCII
580 start=ad+80
590 FOR a=1 TO 128:GOSUB 580
600 PEN 1:LOCATE 11,1:PRINT "CONTENTS OF
"HEX(HEX(ad)) THEN PRINT "RAM" ELSE PRINT
"ROM"
610 WHILE 10
620 GOSUB 580
630 IF ... THEN PRINT#2,HEX(ad,4)
640 GOSUB 540
650 PRINT#2,HEX(ad,y/2)
660 PRINT#2,CHR$(1)CHR$(y/2)
670 GOTO 580
680 IF start=65536 THEN start=0
690 ' Print addresses and hex
700 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
start=
710 WHILE start=
720 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
start=
730 WHILE start=
740 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
start=
750 WEND
760 start=ad+80:PRINT#5:PRINT#5:PRINT#5
770 IF start=65536 THEN start=0
780 IF start=65536 THEN rom=0:PRINT#5:PRINT#5
790 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
800 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
810 WEND
820 IF start=65536 THEN 960
830 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
840 ' valid hex digit: 0-9 A-F:GOSUB 580:IF
HEX(HEX(HEX(PEN#1:INKEY(15)))=HEX
850 GOTO 150:RETURN
860 ' Get byte from RAM or ROM
870 IF rom=0 THEN BYE=PEEK(ad):RETURN
880 IF rom=0 THEN CALL 58475:Bye,ad:RE
TURN
890 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
900 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
910 WEND
920 IF start=65536 THEN 960
930 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
940 ' valid hex digit: 0-9 A-F:GOSUB 580:IF
HEX(HEX(HEX(PEN#1:INKEY(15)))=HEX
950 GOTO 150:RETURN
960 ' Press valid hex digit
970 ' valid hex digit: 0-9 A-F:GOSUB 580:IF
HEX(HEX(HEX(PEN#1:INKEY(15)))=HEX
980 GOTO 150:RETURN
990 ' Get byte from RAM or ROM
1000 IF rom=0 THEN BYE=PEEK(ad):RETURN
1010 IF rom=0 THEN CALL 58475:Bye,ad:RE
TURN
1020 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
1030 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
1040 WEND
1050 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
1060 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
1070 DEF FNad=ad+80:GOSUB 580:PRINT#2,HEX
(HEX(ad)) THEN PRINT "RAM" ELSE PRINT
"ROM"
1080 FOR a=1 TO 128:GOSUB 580:PRINT#2,HEX
(ad,y/2)
1090 IF ... THEN PRINT#2,HEX(ad,y/2)
1100 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
1110 DATA 77,23,36,09,C9,D0,4E,10,C0,0F,
B9,C5
1120 DATA 00,6E,94,00,66,05,7E,D0,6E,02,
D0,66
1130 DATA 33,77,23,36,00,C1,C3,18,B9,C0,
06,B9
1140 DATA F5,D0,6E,00,D0,66,01,7E,D0,6E,
02,D0
1150 DATA 66,03,77,23,36,00,F1,C3,0C,B9
1160 RETURN
1170 ' ESC pressed
1180 MODE 1:PEN 1:CALL 580:END
1190 ' Input error trap
1200 CLS:PEN 1:GOTO 1,200
1210 IF ERR=13 AND ERR=14 THEN PRINT#4,
"Error:ERR in Time:ERR=END
1220 IF ERR=13 THEN PRINT#4,"Not a valid
hex number!" ELSE IF ERR=14 THEN PRINT#4,
"Too big a number!"
1230 FOR a=1 TO 3000:NEXT
1240 RESUME 720

```

```

800 ' List all active Roms
290 bas=0:by=0
900 CLS:PEN 2:PRINT#4 "LIST OF ROMS:PRI
":PRINT#4:
910 FOR a=0 TO 255:CALL 58448,by,a
920 IF NOT bas THEN PRINT#4 "Basic onbo
ard ROM:PRINT#4:
930 IF by=0:80 THEN PRINT USING "###" bas
940 IF by=0 THEN PRINT#4 "Foreground ROM"
950 IF by=1 THEN PRINT#4 "Background ROM"
960 IF by=2 THEN PRINT#4 "Extension ROM"
970 WEND
980 PEN 3:PRINT#4:PRINT#4 "Press any
key"
990 CALL 58459:PRINT#4:PRINT#4 "150:RETURN
1000 ' Initialise
1010 DEFINT bas:DEFINT a:
1020 PEN 1:MODE 1:BORDER 0:INK 0,0:INK 1,
2:INK 2,15:INK 3,6
1030 WINDOW#1,2,6,4,20:WINDOW#2,7,30,4,2
0
1040 WINDOW#3,31,30,4,20:WINDOW#4,1,40,2
,2
1050 WINDOW#5,1,40,23,23
1060 FOR a=1 TO 3:PEN#4,1:NEXT:PAPER#2,0
1070 DEF FNad=ad+80:GOSUB 580:PRINT#2,HEX
(HEX(ad)) THEN PRINT "RAM" ELSE PRINT
"ROM"
1080 FOR a=1 TO 128:GOSUB 580:PRINT#2,HEX
(ad,y/2)
1090 IF ... THEN PRINT#2,HEX(ad,y/2)
1100 CLS:PRINT#5:PRINT#5:PRINT#5:PRINT#5
1110 DATA 77,23,36,09,C9,D0,4E,10,C0,0F,
B9,C5
1120 DATA 00,6E,94,00,66,05,7E,D0,6E,02,
D0,66
1130 DATA 33,77,23,36,00,C1,C3,18,B9,C0,
06,B9
1140 DATA F5,D0,6E,00,D0,66,01,7E,D0,6E,
02,D0
1150 DATA 66,03,77,23,36,00,F1,C3,0C,B9
1160 RETURN
1170 ' ESC pressed
1180 MODE 1:PEN 1:CALL 580:END
1190 ' Input error trap
1200 CLS:PEN 1:GOTO 1,200
1210 IF ERR=13 AND ERR=14 THEN PRINT#4,
"Error:ERR in Time:ERR=END
1220 IF ERR=13 THEN PRINT#4,"Not a valid
hex number!" ELSE IF ERR=14 THEN PRINT#4,
"Too big a number!"
1230 FOR a=1 TO 3000:NEXT
1240 RESUME 720

```


Screen Copy

by Darryn Lavery

The following C64 program takes a copy of the hi-res screen that resides at locations 8192-16191 and places it in the 8k Ram underneath the Basic Rom. The copy of the screen can later be called up.

To copy the screen enter Sys 49152 and to recall it enter Sys 49187.

```

5 REM HI-RES SCREEN COPY BY D.LAVERY
10 SUM=0
20 FOR I=1072
30 READ DR
40 POKE 49151+I,DR
50 SUM=SUM+DR
60 NEXT I
70 IF SUM=12222 THEN PRINT"CHECKSUM ERROR!!" END
80 END
180 DR=9:128:1:132:251:132:251:168:32:132:252:168:168:168:254:168:32
190 DATA 168:0:177:251:145:251:168:249:238:252:238:254:202:208:242
200 DATA 230:1:95:198:1:168:0:132:251:132:251:168:32:132:252:168
210 DATA 168:132:254:162:32:168:0:177:253:145:251:208:208:249:238:252
220 DATA 230:254:202:208:242:230:1:95

```

Cursor

by Paul Lambert

This routine for the C64 allows the user to position the cursor anywhere on the screen. Once the program has been run it can be used by entering Sys 49152 (x position, y position).

The position of the cursor can also be read by using Peek 679 and 680 for the x and y co-ordinates respectively.

```

10 REM
20 READ B:POKE 49152+B,B
30 B=B+1:IF B=OTHER END
40 GOTO20
50 DATA 32,250,174,32,158,183
60 DATA 142,167,2,32,253,174
70 DATA 32,158,183,142,168,2
80 DATA 32,247,174,242,172,167
90 DATA 2,174,168,2,32,240
100 DATA 255,95:0
REM END

```

Multisize Print

by Robert Murray

The following subroutine for the Spectrum allows the printing of text of any width and height.

The variable h contains the height, b the width and a\$ the text.

If the routine is incorporated into a program of your own it should be called with Gosub 9300.

```

10 LET h=3
20 LET b=5
30 LET a$="Test"
9200 PRINT AT 0,0:INK 7: a$
9300 LET y=0: LET w=0: FOR y=167 TO 175
9400 FOR x=0 TO 63
9500 IF x=POINT(x,y)
9600 IF w=0 THEN PRINT w,a$: FOR a$ TO 9
END: PRINT w,a$: DRAW 9,0: NEXT a
9700 LET w=w+b
9800 NEXT
9900 LET w=0: LET a$=a$: NEXT y
9300 RETURN

```

We want your programs!!

Yes, this is your chance to get rich and famous. Well, famous anyway, as *Popular Computing Weekly* is looking for contributions to the Programming pages.

What sort of thing are we looking for? You name it — anything original from games to utilities, applications and the like, written in Basic, machine code or anything else you can think of.

Programs for any computer will be considered, not just the old faithfuls

(Spectrum, Amstrad, QL, Commodore, etc), so send those listings in. What we need is a working copy of the program on tape or disc, plus an accompanying article or documentation that you would anticipate going with the piece, normally not over 2000 words.

Alternatively, send in your short programs to the Bytes and Pieces page — what could be easier?

In return, we'll pay the princely sum of £25/page for the main programming

pages and £5 for each Bytes & Pieces contribution we publish. Plus the fact that your name will be indelibly carved in the *Popular Computing Weekly*, 12-13 Little Newport St, London WC2 7PP and he'll assess them post haste.

Just send your masterpieces in to **Duncan Evans, Technical Editor, Popular Computing Weekly, 12-13 Little Newport St, London WC2 7PP** and he'll assess them post haste.

Programming: Peek & Poke



With Kenn Garroch

Elite commands

M Smith, of Batham, London SW12, writes:

Q I have recently upgraded my Amstrad version of *Elite* from cassette to disc. ■ ■ possible to use my old commanders with the disc version?

A Unfortunately no, the commander loader was re-written for the disc version and hence the format ■ is stored in is different and so unrecognisable to the software. You'll have to start zapping and trading all over again.

Shedding light

David H Welch of Teignmouth, in South Devon, writes:

Q I would like to connect my Amstrad C128 colour monitor to the Commodore 128. I realise that they are almost compatible except for one little thing. One has a pin called Lum (presumably for luminescence) and the other has a pin called Inten (presumably for intensity). Please tell me how I can connect them or if I can buy an interface.

A Unfortunately, the Amstrad monitor, and the 128's colour output are not compatible. The Amstrad is built to take RGB, three signals which control each of

the three colour guns inside the monitor. The C128 on the other hand, puts out composite video, ■ single coded signal composed of the three colours mixed together. The Lum signal ■ used to control the overall brightness of a pixel, and the Chroma to control the colour. Unless you can get a gadget for decoding these into RGB (I don't know of one), there is no way that you are going to get the C128 working with the Amstrad colour monitor.

Ram accessibility

A Manory, of Poole, in Dorset, writes:

Q I have a Commodore 64 and would like to be able to access all of the 64K of Ram. Could you tell me how this is done?

A The C64 uses a technique called 'bank switching' to manage its memory layout. Internally there are three Roms, the kernel containing the operating system routines, the character Rom defining the standard character set, and Basic. There ■ also a section of memory dedicated to input/output (I/O) hardware access.

memory according to the following truth table:

Loram	Hiram	Charen	Ram config
0	0	0	64K Ram
0	0	1	64K Ram
0	1	0	Chr and kernel
0	1	1	Basic, Chr, and kernel
1	0	0	64K Ram
0	0	1	I/O
1	1	0	I/O and kernel
1	1	1	Basic, I/O, and kernel

Note that where not stated, the rest of the memory is Ram (see diagram).

Confused by choice

S Wright, from Aberystwyth, in Dyfed, writes:

Q I intend to buy a computer but am a bit confused as to which to choose between the Amstrad, the Commodore, or the newer Spectrum Plus 2. Could you tell me the differences between the various machines and which one is the best buy?

A Which computer you choose depends on what you want to use it for, playing games, word pro-

ing at the 6128 model which has a fair amount of business software available.

To sum up, the Commodore 64 is the best games machine to buy, the Amstrad 6128 the best business/programming system. Bear in mind that you might get fed up with playing games and want to use the machine for something else.

Piqued by Pip

Tony Baker, of Fareham, in Hants, writes:

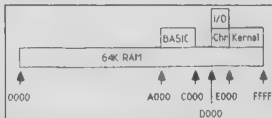
Q I have recently experienced a problem using the utility CP/M program *Pip.Com* on my Amstrad 6128. To copy the file *Test.Bin*, I would normally load *Pip* and then use **B:=A:Test.Bin*, but I am now getting the error message *File does not exist*. However, if I use **B:=A:*.Bin* then the *Test.Bin* is copied without problems. Having used the latter method, I find that I can then make another copy using the original method which would not work previously.

Would you please explain the problem, as I have never had this trouble before?

A Curious: at first sight, this appears to be a glitch in the disc directory but if, as you say, the file reappears after copying it, there is something very odd going on. It could be that the disc was not seated properly the first time, or that there is a fault on the disc in the directory tracks.

■ is unlikely that there is anything wrong with *Pip* since it copied the ambiguous file name. The best thing to do is copy everything from the disc, re-format it, and then put everything back. Alternatively, copy all the files you have created to another disc, re-format the dodgy one, and then re-create the system files from the master disc.

If the problem persists, send the machine back to the manufacturer and tell them that the disc drive is playing up.



Underlying all of these is Ram which can be switched in or out with the 6510's I/O register at memory locations ■ and 1. Location 0 is the data direction register for the port at location 1. Only bits 0, 1, and 2 of the port control the memory allocation, the rest are used for the tape control. The lower bits must be set to output to control the memory, so Poke 0,7 sets to the DDR to output on bits 0, 1 and 2.

These bits are known as Loram, Hiram and Charen respectively, they control the

access (business use), or programming. Of the three you have selected, the best machine for games is probably the Commodore 64 with the Spectrum Plus 2 a close second. There are hundreds of games available for these machines with more being released every day. In general, the quality of those on the Commodore are superior.

For business and programming, the Amstrad is the better bet. It has a better keyboard and better built-in Basic than either of the other two. I presume you would be look-

How to become a musical editor

Mark Jenkins looks at the new Atari package from Kuma

Sorry to keep returning to the Atari 5201/1040ST micros, which are obviously a bit on the expensive side, but these machines are the best bet musically at the moment once you've exhausted the possibilities of the Commodore 64, BBC or whatever.

Obviously the musical advantages of the Ataris are, a) a reasonable sound chip, b) built-in Midi for control of professional synthesisers, and, c) great operating speed, efficiency and memory capacity.

Kuma's new music package *K-Minstral* makes use of all these facts, offering three channels of composition and playback on the computer alone, or four, eight, 12 or 16-channel playback via Midi. As we've discussed before, getting into Midi isn't all that expensive now - Casio's CZ-101 synth is available at around £190 second-hand and offers eight-note chords of four single notes played with different sounds simultaneously.

In four-channel mode, *K-Minstral* stores 3200 chords and it's possible to program slurs, triplets, accelerandos and crescendos (changes in speed and volume), so it's quite a powerful package with or without Midi.

The package consists of a single disc and a slim booklet which describes the system as a 'musical display editor'. The basic display is a double musical stave, and the pull-down options are *Desk*, *Music* (Play, New, Load, Save, Quit), *Sequence* (Play, Start, End, Copy, Delete, Move, Merge and Save), *Chord* (Play, Delete, Insert, Mark), *Select* (Channel, Volume, Tempo, Tempo No, Attack, Decay, Sustain), and *Options* (Change Key, Change Name, Transpose, Metronome, Print Pages).

Medium resolution is used so all the text is a little skinny, but the screen display is very clear and at the bottom of the screen there's a choice of note lengths, rest lengths and tempo which allow you to insert your own notes using the mouse.

The demo pieces include a bit of Handel, *The Entertainer*, *Land Of Hope And Glory* and much more, and you can alter the sounds used by the computer using

"Medium resolution is used so all the text is a little skinny, but the screen display is very clear and at the bottom of the screen there's a choice of note lengths, rest lengths and tempo"



the *Select* page. Each voice is represented in notes of a different colour to aid in composition, and you can enter either single notes or whole chords.

The page number of each screen is indicated as the composition plays and you can load a sequence from disc to insert it after a section you've already completed. You can enter a title for the composition using *Change Name*, select a new key signature with *Transpose* and produce a metronome click if desired.

An Epson-compatible dot matrix printer will transfer your completed composition to paper and, as we've mentioned, you can change tempo (accelerando) during the course of a piece, adjust



volume (crescendo) and insert fast triplet notes in place of existing pairs of notes.

Unfortunately the manual has nothing to say about the Midi facilities of the package, so we'll experiment with them in time for our music supplement in a couple of weeks.

K-Minstral is £29.95 and more information is available from Jon Day at Kuma Computers Ltd, 12 Horsehoe Park, Pangbourne, Berks. Tel: 07357 4335.

Just space for a quick letter from Paul Mitchell of Cardiff. Paul wants to know if there's a good multi-voice editor package out there which will allow people like himself to learn the basics of music using a micro, without necessarily needing Midi compatibility.

K-Minstral, in fact, looks like being a good bet here, although you don't mention what micro you're using at the moment. Certainly it will allow you to enter notes or chords in three or more voices and play back your compositions to check your phrasing, but on the other hand, it doesn't actually offer you any help in learning music.

The *Advanced Music System* on the BBC, C64 and Amstrad machines is in very much the same tradition, and there is one good tutorial course for micros, the *Coleman Music Compendium*, which teaches you the basics but doesn't really let you enter music to check it out afterwards.

On the C64 and Apple there's *Activision's Music Construction Set* which may answer your prayers, and if you do want to get into Midi there are always the Steinberg packages, which allow you to enter music from a keyboard and then see it transcribed so you know what you've done and can check it for mistakes. But if you do have any queries of this nature in future, it helps if you let us know which micro you're budgeting for!

If you have any queries or tips for this column, please write to Mark Jenkins at *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP. Mark would also welcome examples of your own music on audio or program tape, or disc.

The Computer Chess Championships

Martyn Bryant reports on the
1986 World Computer Chess Championships

Kasparov v Karpov may be the talk of the human chess world at the moment but two months ago in West Germany, 23 programs pitted silicon brain against silicon brain for the title of World Computer Chess Champion. No player interviews, no colour coded yogurts, no para-psychologists – just good honest chess, ranging from, "Oh God, that's hopeless" to "truly sensational".

The contestants ranged from the micro-based newcomers to the 'old-hands' with their Cray XMP super computers. The hardware, in the main, behaved well with only a few chips getting hot under the collar and any problems were handled sportingly by the human operators. The average strength of the programs was down a bit this year due to the absence of ex-world champions *Belle*, *Chaos* and *Nuclech* but the very best programs played some gems with the latest micro contenders performing creditably against their giant cousins.

For those of you who may doubt the ability of the best programs, feast your eyes on the following gem in round 2 (see diagram) by *Hitech* (white) against *Schach*

2.7 (black) at the end of which *Hitech* announced a mate in 8! (Tournament Director Mike Valvo and Grandmaster Ulfstirn Hott didn't even believe it!).

Now, how would you judge this position? Both sides have chances. Do they? Well let's see – the play went 20 Be2 b5 Bd7xb5 21 Qh4xb5 Pg6-g5 (needed to avoid 22 Rg1xg6! leading to mate, eg. Ph7xg6 23 Qh5xg6+ etc).

What do you think? White has manoeuvred nicely to increase its King-side attack – but what now? I know you're looking for the stunning sacrifice but even if you've guessed the right one, can you explain it to completion? Well *Hitech* could. It played 22 Be3xg5! *Schach* 2.7 wasn't totally convinced so played on for a couple of moves 22... Pf6xg5 23 Rg1xg5+ Kh8-g8 (not Be7xg5 24 Qh5xg5+, which also leads to mate) 24 Rd1-g1 Resigns. Black has no adequate reply to the mating threat of Qh5xh7+.

The finish of the five-round Swiss-style tournament was surely the most exciting ever, with four programs going into the last round with a chance of the



Martyn Bryant

championship, and three of them being tipped as winners in the last few hours. In the end four programs were tied on four points each and the Buchholz system was used to break the tie giving the final result of 1st, *Cray Blitz*, 2nd *Hitech*, 3rd *Bebe* and 4th *Phoenix*.

Cray Blitz is the first computer chess program ever to retain its world crown (contested every three years), but the general consensus at the tournament was that *Hitech* had played the best chess and achieved the highest tournament performance rating of 2302. *Hitech* runs on specially built chess hardware and its 600K program can search an awesome 175,000 positions per second. *Hitech* is now about the 200th ranked US player with a rating of 2352. It has never lost to a play rated below 2250.

I'll try to answer all your questions so that computer chess enthusiasts can benefit. If you really need a personal reply then please enclose an a.s.c. The questions below seem to be the most commonly asked from our first mailbag:

1. How are two chess programs played against each other?

First load up both programs in their respective computers. Then get one program to make the first move for white. When it has done this, type its move into the second program. When it then replies for black, type that move back into the first program and so on.

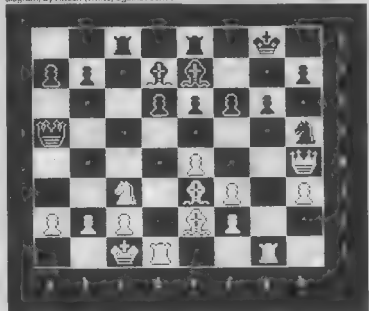
2. What literature is there for people beginning to program computer chess?

Try *Computer Chess* (Newborn, Academic Press), *Chess & Computers* (Lavy, Computer Science Press) or *The Machine Plays Chess* (Bell, Pergamon).

3. Is Basic fast enough to write a chess program in?

I'm afraid not. Chess programs rely on great speed to achieve their playing strength. The best programs are written in assembly language which is hundreds of times faster than Basic. You can use a compiler to turn high level languages into assembly language but even then it would still be perhaps ten times slower, depending on the efficiency of the compiler.

The *Popular vs Colossus* game is making steady progress – check this week's Letters page for the game so far and the latest moves for you to enter.



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New Releases

John Cook looks through this week's new arrivals

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Program Preppie Type Arcade **Micro** Atari XL/XE **Price** £2.99 **Supplier** Americana Software, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Program Silent Service Type Simulation **Micro** Atari XE/XL **Price** £9.95 (tape), £14.95 (disc) **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Atari ST

Program Golf Type Strategy **Micro** Atari ST **Price** £19.95 **Supplier** Anco, 35 West Hill, Darford, Kent DA1 2EL.

Program Silent Service Type Simulation **Micro** Atari ST **Price** £24.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Amstrad CPC

Program Return to Oz Type Adventure **Micro** Amstrad CPC **Price** £9.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Program Big League Soccer Type Strategy **Micro** Amstrad CPC **Price** £12.95 **Supplier** Viper Software, 36 Old Quarry Close, Rubery.

Program Rebel Planet Type Adventure **Micro** Amstrad CPC **Price** £9.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Commodore 64

Program Conan Type Arcade **Micro** Commodore 64 **Price** £2.99 **Supplier** Americana Software, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Program Olympic Skier Type Arcade **Micro** Com-

modore 64 **Price** £2.99 **Supplier** Americana Software, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Program Blinker-64 Type Utility **Micro** Commodore 64 **Price** £29.90 **Supplier** Information Developments Ltd, 24 Deerings Road, Reigate, Surrey RH2 0PN.

Program Go for Gold Type Arcade **Micro** CBM 64 **Price** £2.99 **Supplier** Americana Software, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Go for Gold is what budget software should be about. It's fast and fun and is sure to be a big hit with Commodore sports fans.

The events are a good mixture of joystick bashers (the good old 100 metres dash) and those like the weightlifting which require quite a touch to succeed in.

The graphics are bright, with large, bold sprites representing the on-screen characters and up to six people can play, with each taking turns to perform (except the racing, where you can play against one other).



Frills include speech from time to time – and although *Go for Gold* isn't as polished as *Summer Games*, for instance, for the money it goes straight to the top of the rostrum.

Pick of the week

Program Revolution Type Arcade/Puzzle **Micro** Amstrad CPC/Spectrum **Price** £9.95 **Supplier** Vortex, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

When you see magazines listing the major UK software houses, Vortex is a name that somehow doesn't seem to crop up. But when you think about it, for a great many years, these guys have come up with some consistently excellent games. The *Android* games, great in their time, then *Tamato Low Level*, *Highway Encounter* and its sequel... all stuff you could really get your teeth into. Well, they've done it again with *Revolution*.

Using the same minimal graphic style of *Encounter*, *Revolution* is a totally original arcade/puzzle that has an atmosphere all of its own and will keep you glued to the monitor for hours.

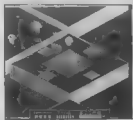
The concept is simple. You control a bouncing ball on a platform of tiles, each gridded tile taking up about one screen (between the tiles on one level there is a void from

which there is no return).

On each level, there are four puzzles to be solved – puzzles that look pretty simple. They consist of two blocks somewhere on the tile – all you have to do is touch one of them (which obligingly changes colour) and now must touch the other within short time, otherwise the first block returns to its former state. Easy.

Add some beautifully designed nasties buzzing to and fro plus assorted unexpected surprises (I won't spoil the fun), and in reality, it's not as easy as you think.

Massively addictive, this is another work of programming genius from Vortex's Costa Panayl. Out soon on Spectrum and Amstrad CPC, it's simply a must.



Program Room 10 Type Arcade **Micro** Commodore 64 **Price** £9.95 **Supplier** CRL Group, Kings Yard, Carpenter Road, London E15.

One day, you know, mankind will live and work among the stars – and naturally, in between toiling in the airless wastes and eating his reconstituted Big Mac – he will want to invent new and exciting recreations, as (let's face it), "I spy with my little eye, something beginning with S," would be one of those things that started to get on your nerves after a little while, wouldn't it? At least, that's the rationale behind *Room 10*, from the CRL stable.

Gai Corp (Chairman, Sir A Sugar IV, probably) have invented several entertainments to pass the time in low gravity, the most popular being in *Room 10* of the leisure complex. It's called 3D Pong... ohoopha... no it isn't, sorry, it's actually called gliding, very sensibly actually, because... um... be-

cause? Oh, who knows? Maybe you have to be wearing thermals to play it or something.

No, don't titter, because despite being, in effect, a three dimensional version of that earliest of home video games, *Pong*, *Room 10* is great. The display consists of two independent screens, one on top of the other, each showing a perspective view from the opposing end of the oblong box that is the court.

You control a bat that you can manoeuvre about the far wall, and the idea is to bounce a ball past your distant opponent. They try to prevent this by putting their bat in the way, and long tension filled rallies often ensue. You know – just like it used to in 'you-know-what'.

What ever way you look at it, this is *Pong* 1986 style and it's fabby. The Amstrad version has been out for a while; now play it on Spectrum and Commodore.

All have one/two player options, and if you're trying to hammer the computer, you

can play on several levels of difficulty. While the Spectrum version is probably the fastest, on Commodore you have the advantage of being able to play two-player, both with joysticks - which is advisable, as the Restore key hasn't been disabled. Naughty.

In any case, *Room 10* is well worth looking at, if only to see how far the video game has come in a decade. Try it.



Spectrum

Program Fortran Compiler Type Utility Micro Spectrum Price £15.00 Supplier Mira Software, 24 Home Close, Kibworth, Leics LE8 0JT.

Program Skyplot Type Educational Micro Spectrum Price £10.00 Supplier Mira Software, 24 Home Close, Kibworth, Leics LE8 0JT.

Program Chess Type Strategy Micro Spectrum Price £2.99 Supplier Elite Systems, Anchor House, Anchor Road, Aldridge, Walsall WS9 8PW.

Program Ole Toro Type Arcade Micro Spectrum Price £2.99 Supplier Americana Software, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

Program Timetrax Type Arcade/Adventure Micro Spectrum Price £9.95 Supplier Mind Games, Victory House, Leicester Place, London WC2.

Sweden 1 - England 0 ... what a fiasco - on top of that hugely ordinary performance over in the

New World earlier in the year. Depressing, isn't it? And things aren't any better when it comes to computer simulations.

Although *Football Manager* is probably one of the biggest selling games in the UK, just like the England midfield, it is seriously flawed and showing its age.

The match highlights look a bit silly now, but the major flaw has got to be the lack of tactics available to the manager.

What if it's the last match of the season and you only need one point? What about if you need three points and what to go for an all out attack? Can't be done. Using actual footballing tactics, such as playing all out defence or even the bringing on of substitutes, cannot be done.

Not that *Football Manager* is a bad game. Only several years on, you'd hope for something a little more realistic.

Well now there is another football simulation, from Viper Software, and it's called *Big League Soccer*. And it contains none of the above improvements.

Apart from being discredited and having slightly better match graphics, for me there were no significant differences from Amstrad-based *Football Manager*. Boo. Hiss. Starts slow handclap.

There is only one solution. Sack Ray Wilkins, bring me Bobby Robson's head on a plate and someone teach Brian Clough how to program in Z80.

Program Thingy and the Doodahs Type Arcade Micro Spectrum Price £2.99 Supplier Americana Software, Unit 2/3 Holford Way, Holford, Birmingham B6 7AX.

Americana, you might have noticed, is the US Gold attempt to get into budget software - and it's fair to say that the output from the label has been patchy.

Take *Thingy and the Doodahs* for instance. *Thingy* is a collect and dodge game of a fair size (over 200 rooms it says) that looks a bit dated. The idea is that you must collect at least 60 pound

coins from the house and then go to the computer shop to buy a new Spectrum - seeing as you just broke your old one.

In each room there are single colour, two frame animated sprites walking to and fro, sometimes chasing you - which you must avoid as you move from screen to screen in your quest for loot. Not very fast, not very original, not very inspiring, not very anything really.

Now no-one would be complaining about this if it was going for the standard budget £1.99 (not much anyway) as *Thingy* would pass away a wet Sunday afternoon at a push. But Americana are asking you to part company with £2.99 for re-living those heady days of 1984.

For that money in the budget market nowadays you could get yourself a David



Jones game, complete with drop down menus, Magic Knight and gung-ho slick arcade action. Or a re-issued oldie, such as that classic, *Schooldaze*.

Thingy just isn't worth that extra quid, and although there are some excellent little games in the Americana range, it's crazy that the price a particular program is sold at doesn't reflect the quality.

Program Animator 1 Type Utility Micro Spectrum Price £9.95 Supplier Softcat Micro Supplies, PO Box 79, Macclesfield, Cheshire SK10 3NP.

Animator 1 has been out for a fair while now, but has recently been

redesigned and in the words of Softcat "tidied up" so it's well worth another look.

What do you get for your tenner? Basically, it's a screen designer, sprite designer and animator, print utility and character designer all in one, with an extra program to print your masterpieces out up to 69 feet by 60 feet - assuming you can afford the printer paper.

There's no doubt that there is a hell of a lot crammed into this package - but the bad news is that you might find it a little bit inaccessible to start with. No drop down menus or icons here so don't expect to be able to get down to work straight away.

The program is also a little too fragile - at one point I broke out of it completely, which didn't inspire confidence. Imagine that happening during a particularly frantic spell of artistic inspiration?

But in its favour, *Animator 1* does have a wide variety of uses. Where else would you get a reasonable art program, a primitive print shop and a font designer (to name but three) for this kind of money - plus the facility for designing



and animating sprites?

It's compatible with micro-drives or Opus disc and Softcat offer technical support for programmers who need more information about using *Animator 1* as a development system, or people who have non-standard interface/printer combinations.

I'd say that considering the range of its applications, *Animator 1* is a good deal - if you're willing to put in some effort getting the most from it and don't mind a few rough edges.

Joyce versus Joyce

My father is investigating the possibility of buying an Amstrad PCW 'Joyce'. By a coincidence my father's secretary is also called Joyce, so I have been wondering how the two Joyces might compare, should they meet.

At present, office reports are usually produced by typing from hand-written notes, usually handed directly to Joyce (the secretary). Typing takes up most of Joyce's time but it is not the most important part of her work. She prepares and files statistical information, handles quite a bit of accounting and she runs the office.

My father and Joyce, therefore, represent a team. He is the expert in his particular field and she is the expert in hers, which is administration. Should Joyce (the PCW) ever join the team then Joyce (the secretary) can expect significant changes to her job.

Conventional thinking would place the word processor on Joyce's desk to replace the typewriter, but nothing could be more inefficient. Reports would still be hand-written and then typed, so there would be no saving of time. Joyce might type faster with the PCW, but she already types quickly with few mistakes. In any event, correcting spelling mistakes is not word processing.

However, if Joyce (the word processor) is placed on my father's desk then an enormous improvement can

be expected. Reports would be typed directly into the machine and properly word processed: paragraphs would be shunted around, sentences reworked and spelling corrected, just as with a hand-written draft.

An extra bonus could be gained from keeping a stock of template reports so that repetitive passages need only be typed once and then amended as required.

Ultimately, Joyce (the secretary) could say goodbye to her typewriter and concentrate on office management. Better still, she could get her own micro and computerise the office systems.

People trained as typists might see this as a threat to their jobs. However, the total number of jobs in a firm might not change much, but the type of jobs would alter.

Firstly, everyone from the chairman down would need to be able to type in order to use the computing power now essential in modern business. This offers current secretaries a temporary advantage over most junior managers for the management jobs of the future.

Secondly, the typing pool would become unnecessary. This is nothing to mourn, for there is no glamour or excitement in a typist's work.

Typing also offers few opportunities for advancement. However, even with word processors, managers still require personal assistants who would be destined to become

managers in their turn.

Secretarial posts would, therefore, tend to be filled by ambitious people who would become managers; a more interesting prospect than a lifetime behind a typewriter.

Although this bright future appears to be new, it is, a return to the time before the invention of the typewriter and before the terms 'secretary' and 'typist' became confused. A secretary was a confidant and personal assistant, relied upon to relieve the burdens of administration and to offer timely advice. This is why senior politicians, even now, are called secretaries. The secretary of state for war was never called upon to do the army's typing.

It was the typewriter which changed the role of the secretary. When typed correspondence became the norm, typing fell naturally into the domain of the office administrator, the secretary. Managers could not spare the time firstly to learn the skill of touch typing.

Because typing took up so much of the secretary's time the role of office administrator was gradually lost and 'typist' and 'secretary' became almost synonymous.

By drafting and preparing documents in one process, the desk top computer will change all that and there is a chance that the secretary's role will return to its former importance. That is, if the two Joyces can be kept apart.

Mike Lloyd

NEXT WEEK

Hardware

The Comx PL-80 low-cost four colour printer/plotter is compatible with Commodores and PCs - which means Amstrad, these days. We take a look at its performance, and its price - it's under £200.

Plus the Fantastick 2 joystick - ergonomically designed and suitable for left or right-handed players. How does it compare with the competition?

Atari ST - Fast Basic

ST Basic has come in for a fair bit of criticism, and now Computer Concepts has come up with an alternative - Fast Basic, a Rom-based program for all Atari STs. Duncan Evans investigates.

Name that film

Our exciting autumn competition reaches its third part with two more science fiction film titles for you to identify.

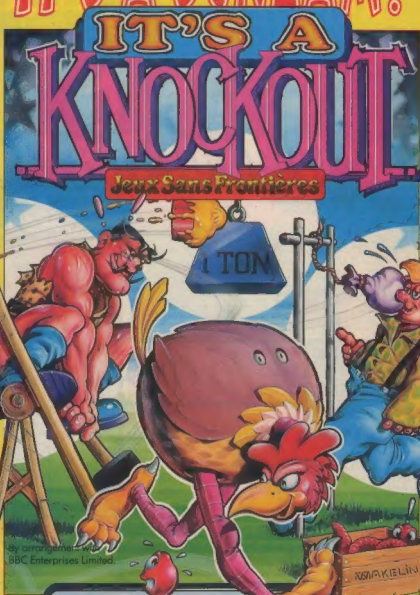
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